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Telephony.

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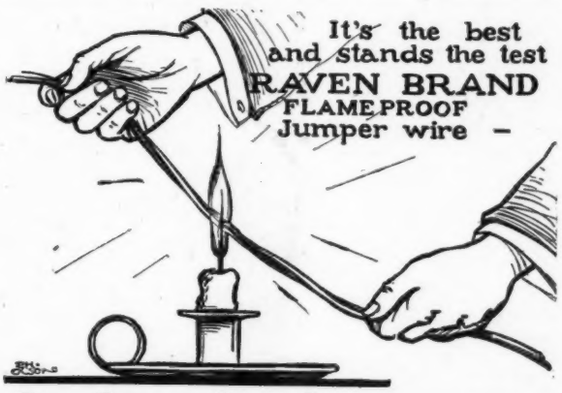

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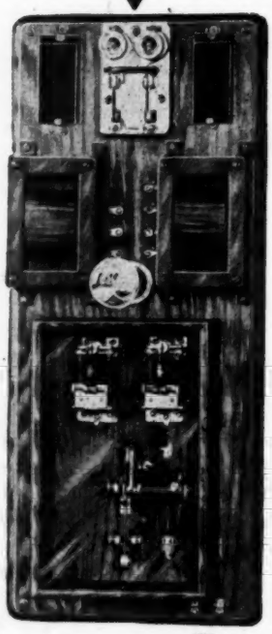

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Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves

PUBLISHED WEEKLY BY THE TELEPHONY PUBLISHING COMPANY
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General Business and the Independent Field.

Last week marked the close of one of the greatest six months' periods of prosperity which this country has ever known. That telephone companies have shared in the general prosperity is indicated by the monthly statements of earnings which TELEPHONY has published from time to time. The statements of companies operating in all parts of the country show a most gratifying increase in earnings over the corresponding periods of last year.

Industry is generally running at its maximum and there is an absolute lack of unemployment. This is due partly to the exodus of the European reservists and partly to the abnormal stimulus to production in the munitions and other industries. Labor is, therefore, in full employment at possibly the highest wages in our history—and this means a correspondingly highly profitable domestic trade, especially when supplemented by a good harvest.

It is conservatively estimated that $107,762,000 will be paid in dividends by industrial companies, electric railways, banks and railroads this month, as compared with $94,210,000 in July 1915. The interest payments, including those on governmental obligations, will be $8,650,000 greater than last year. The total of dividends and interest payments amounts to $292,372,000 as against $270,170,000 in 1915. Despite these high figures which are for one month only, business in general has been conservative during the period. The debts have been paid and provision made for the future by using profits for improvements and building up cash balances.

Investment markets disclose a minimum of unhealthy speculation. The bond market is active and expenditures the greatest known in new undertakings and permanent construction for commerce and transportation.

The willingness and ability of investors to put their money into the country's investment securities usually indicates the soundness of a country's financial position and the prospects for its continuance. During 1915 at least a thousand million dollars of American securities owned in Europe were put on the market and absorbed by investors of this country.

The withdrawal of the Western Electric from the Independent field naturally opens up to Independent manufacturers a greater market. Last year the Bell factory did $4,000,000 of business—something like 40 per cent. of the total—in the Independent field. The greater part of this $4,000,000-business must now, of necessity, be placed with the Independent manufacturers. That this will have a beneficial effect upon all who sell to the Independents cannot be questioned. On the other hand, there are some Independent managers who have held off recommending to their directors the installation of new eq uipment for fear they would be coerced into taking Western Electric equipment by pressure exerted upon certain of their directors. With the Bell influence removed, these managers will proceed with their plans, as they are now quite certain that their recommendations as to new equipment will be favorably considered.

The great booms which many localities are experiencing are, of course, reflected in demands for increased telephone facilities. To supply the required service additional equipment and supplies are needed by many of the Independent companies. These orders will now be placed with the Independent manufacturers instead of 40 per cent. going to the Bell factory. As a matter of policy the Independent manufacturers will exert every effort to hold their regular business and satisfactorily handle that of former customers whom the Western Electric, after many years of endeavor to obtain, has left to shift for themselves.

This desertion can only be taken as evidence that the Bell factory, despite the statement that it may solicit business when conditions return to normal, has permanently withdrawn from the Independent field. The Independent manufacturers will most assuredly avail themselves of the opportunity which has been opened up to them.

Competition is the life of trade and that there will be competition for this extra business of telephone companies goes without saying. The manufacturers who combine aggressiveness, quality of goods, and service, are certain to profit the most. The competition will be keen and half-hearted efforts to secure a share of the business will not avail. The manufacturers must be on the *qui vive* constantly.

The Modern Poets

By HERBERT KAUFMAN

The long-haired ones aren't real—the important contemporary poets are long-headed, too busy building roads and sky scrapers to bother with odes and Castles-in-Spain. They're fighting the world's battles, not writing them. Their pens weren't mightier than the sword, but their tools are.

All the vital equipment with which this amazing century operates and economizes on mind and matter, was devised and contrived in dream-shops—forged in the smithies of vision.

Fancy is the forerunner of fact. Progress is actually our old friend Romance turned practical. Imagination is Generalissimo, in every field where great forces are employed or engaged. The same quality of mind that produced a Homer, a Tennyson, and a Verne, induced a Huntington, a Harriman and an Edison.

The ancient prophets were telepathic—the modern seers are telephonic. Bell was simply a soothsayer who got down to hardpan—he predicted and then perfected.

The inventor is just a clairvoyant who translates his forecastings to castings. We get all our advance information through engineers. Their keen brains hear into the masked distances and sense advancements which the obtuse intelligence cannot detect.

Once upon a time dreamers were afraid to reveal themselves. Humanity wasn't ready to believe in their power. Nowadays the men behind the tremendous games are the sort we used to stick behind mad-house bars. That's why so many poets confined their expressions to Emphirical themes—they dreaded a worse confinement.

The ideas that went to waste in padded cells would probably fill another patent office and solve half of the problems with which we are now tussling.

Ignorance is suspicious of new notions and derides until it decides that they are sound. For ages no respectable person would acknowledge friendship with a scientist.

Chemistry was looked upon as a black art. Physicians hid their identity in star-freckled dominoes and pursued their studies under the guise of charlatans. It hasn't been very long since surgeons had to earn their daily bread as barbers—they were permitted to shave their fellows, but not save them.

A great deal of knowledge was formerly a very dangerous thing.

We're bigoted folks, we humans, and despite close familiarity with miracles and the means by which they are wrought, there lingers a strong impulse to discount the next logical revelation. Nine out of ten of us continue to "copper" every bet on the unshown.

We still scoff and assure ourselves that what we can't see, can't be. That's why the poets began building airships and subways—that's why they took up the scalpel and the calipers—they had to prove that It Could Be Done.

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Fundamental Principles of the Telephone Business

A Reading Course Designed to Present Logically the Principles Which Underlie Successful Organization and Operation of Telephone Properties—Prepared Under the General Supervision of Stanley R. Edwards—Part I, Telephone Economics, by James H. Shoemaker, Completed June 26, 1915—Part II, The Corporate Telephone Organization, by J. C. Kelsey and S. R. Edwards, Completed September 25, 1915—Part III, Telephone Accounting and Auditing, by James H. Shoemaker, Completed January 15, 1916—Part IV, Telephone Finance, by J. C. Kelsey and S. R. Edwards, Completed June 3, 1916—Installments Now Being Presented Comprise Part V, Telephone Advertising and Publicity, Written by Roy D. Mock

Quiz Questions on the Preceding Installment.

18. Why should capital and small letters be used in setting up an advertisement rather than all capital letters?

19. What is the purpose of a border around an advertisement?

20. State the reasons advanced for the use of white space around an advertisement.

21. Discuss the use of type faces as regards harmony with the article advertised or the impression it is desired to convey.

CHAPTER III. Layout of Advertisement (Cont'd.)

22. *Effectiveness of the Set Up of an Advertisement.*—As an example of an advertisement that was spoiled in the set up, notice Fig. 14. There is plenty of white space in this advertisement, but it is scattered through the advertisement instead of being in the form of a frame on the outside. Too many sizes and faces of type are used, with the result that no one portion of the advertisement stands out with the prominence it deserves. It is too much like a man who talks at the top of his voice all the time. When he has something really important to say, he has no way to express this emphasis. Fig. 15 shows a better arrangement of the same advertisement. Only two faces are used, Old Style and Caslon, both in Bold and Italics.

WHY NOT YOU?
Your neighbors save their time, temper and money by using the HOME TELEPHONE for their Local and Long Distance Telephone business.
Every Home Telephone is a Long Distance Phone, and a comprehensive system of HOME LONG DISTANCE wires will reach the party you want.
Route Your Business Over
HOME LINES
Five Minutes Initial Period in Kentucky.
Efficient Service and Reasonable Rates.
The Paris Home Telephone and Telegraph Company
(Incorporated)
J. J. VEATCH, District Manager.
CHAS. B. HARRIS, Cashier.

Fig. 14. White Space and Type Faces Improperly Used.

Why Not You?
Your neighbors save their time, temper, and money by using the Home Telephone for their local and long distance telephone business.
Every Home Telephone is a long distance telephone and a comprehensive system of Home long distance wires will reach the party you want. Five minutes initial period in Kentucky. Efficient service and reasonable rates.
The Paris Home Telephone and Telegraph Company
(Incorporated)
J. J. Veatch, District Manager
Chas. B. Harris, Cashier
Route Your Business Over Home Lines

Fig. 15. A Better Arrangement of Matter of Fig. 14.

23. *The Importance of Balance in an Advertisement.*—A point that always comes up in connection with layouts is regarding balance. In advertising, balance is something that can be felt and seen rather than figured out mathematically. A well-balanced advertisement looks pleasing to the eye. Each part seems to be in proper proportion to every other part, so that the entire advertisement is harmonious.

The question of proper balance in an advertisement may sound theoretical but, as a matter of fact, it is intensely practical. A pleasing advertisement is always more effective than a displeasing one. It has more attention value. More people will see it on the page and they will be pleasantly affected by what you have to tell them.

The difference between an attractive advertisement and one that is not properly balanced is just the difference between a well-dressed man and a man dressed in a shiny, ill-kept and ill-fitting suit. They may both tell you the same story with equal sincerity and forcefulness behind their words. But somehow you are inclined to place more reliance in the man who looks well cared for. In the same way the public you are attempting to influence will place more reliance in an advertisement which is well thought out, properly balanced, typographically perfect, than in an advertisement which is off balance and exhibits poor typography.

24. *Illustrations of the Effect of Balance.*—A little study in balance is presented in Fig. 16. Notice in going through these figures how some of them appeal to the eye as pleasing while others are displeasing. It is difficult to state why some of these figures have a harmonious appeal while others are decidedly displeasing—it is enough to know that one's own eye can guide

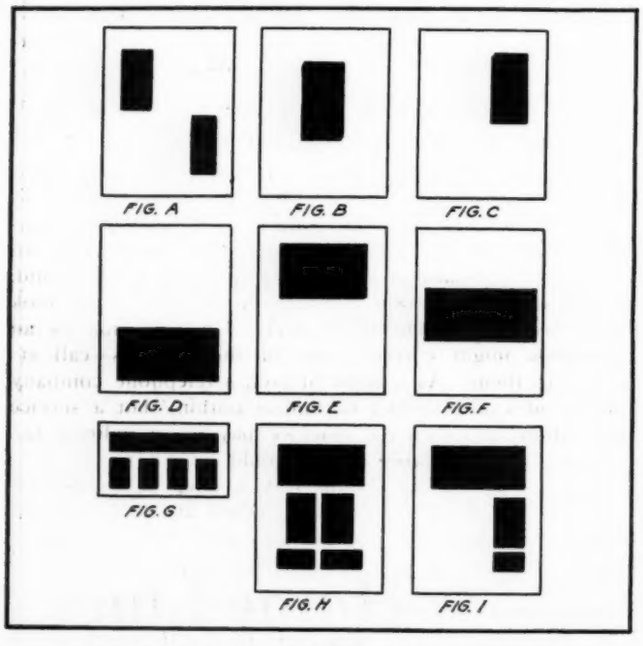


Fig. 16.. A Study of Balance in Advertisements.

him in accepting or rejecting ideas of this kind. A decision so made, however, will be very nearly unanimous throughout the entire human race, for the same sense of proportion is inborn in most of us.

Fig. 16-*A* is well balanced because the two sections of type matter represented by the shaded portions, although in opposite corners of the advertisement, seem to balance each other off.

Fig. 16-*B* is also harmonious even though the space below the shaded portion is greater than that above it. In spite of this, it is in perfect balance for the reason that the human eye is trained to read from top to bottom. It sees the white space at the top of the advertisement before it sees that at the bottom and, consequently, it is inclined to place unusual emphasis upon the space at the top. In other words, the first impression is that the space at the top is greater than it really is, which makes the advertisement seem well balanced and centered.

An interesting balance is exhibited in Fig. 16-*C*, even though there is no other shaded portion to balance off the spot in the upper right-hand corner. In this case the white space in the lower left-hand corner somehow seems to add weight, so that the diagram is really harmonious and well balanced.

Fig. 16-*E* is pleasing to most people, while Fig. 16-*D* is not. No one seems ever to have offered a lucid explanation of why this is true—it just is. Test it on any number of people and it will be found that a vast majority of them will prefer Fig. 16-*E*. In other words, in writing an advertisement with a small amount of type matter which is to be set in a large space, get the type matter to the top. Have the margin at top and both sides practically equal and let the margin at the bottom be as wide as you care to—from one inch to one foot—and the result will be harmonious. Fig. 16-*F* is also a bad arrangement.

Fig. 16-*G* presents an interesting and harmonious arrangement of matter in an advertisement of a shape which is always very difficult to handle—namely, a wide space with short depth. Fig. 16-*H* is also very harmonious. Notice how the various portions of this advertisement balance each other off and how the whole advertisement seems to harmonize well with the space it is intended to fill.

A bad arrangement is exhibited in Fig. 16-*I* because none of the shapes seems to harmonize well with any of the others or with the entire advertisement. An illustration placed in the vacant space would tend to furnish a balance for the other matter, in which case the advertisement would be harmonious.

As has been stated, there is no mathematical rule that can be applied to secure balance or harmony in an advertisement. The designer of an advertisement must be guided by his own eye and common sense. If he really takes pains to see that his advertisement is properly balanced and harmonious, he is going to have an advertisement which will be doubly effective because more people will see it and be impressed by it. And that, after all, is the purpose of all advertising—to impress the public mind.

(To be Continued.)

Telling Subscribers of Damage Done by Lightning.

The Cumberland Telephone & Telegraph Co., of Louisville, Ky., has just sent out to its Louisville subscribers, in the billing envelopes, a circular descriptive of damage done to telephone systems by lightning. The damage done recently at Lebanon, Tenn., is instanced and it is stated that the local system is subject to similar disasters. "Should your service be affected by lightning this summer," says the circular, "you may be sure we are exerting every effort to restore it as quickly as possible. The summer is a particularly trying season on telephone service and plant. We ask that you co-operate with us in the interest of good service by reporting your difficulties promptly."

Forward and Back—Relations of Indiana Companies to Bell

Annual Address of President of Northern Indiana Association Reviews History of Association and Relations of Member Companies with Public Utilities Commission and Bell Company—Experiences with Bell Tactics—Other Questions Which Must Be Answered

By Samuel Tomlinson

A few years ago a few of us conceived the idea that it might be well to have an association, so a meeting was called for the purpose of seeing whether this sentiment was held by others of the telephone group. It was decided unanimously that it would be a good thing to associate ourselves together for the benefit and the improvement of ourselves and others, so the association was formed and the officers elected, and it has been my honor to be your president since its organization.

Personally, I had ideas that were rather visionary, but I thought that possibly we could get together on common ground and that it would be of mutual benefit to have this association. To some extent I have been disappointed in this matter, partly because we have not been able to bring the force to bear that would bring the co-operation we need, and partly because your president couldn't put these ideas into words and could not convey his thoughts in such a way as to secure your greatest co-operation. We all have our own ideas, and we all have the idea that we have to stick around home or things will not go at all. I believe that if we would go and call on our neighbors oftener that we would get along better.

Indiana District Association.

The association was organized at a time when the state association was virtually dead and we had no active association in the state. Since that time there have been three other district associations formed. The first is the Northeastern Indiana, with headquarters at Fort Wayne. Ind.; the second is the Benton County association, with headquarters at Fowler, Ind., and the third is the Southern Indiana, which has just held a meeting at Seymour.

The Ohio state association has followed somewhat after our ideas. It has organized district associations in each district throughout the state. I believe that the idea is good, but I also think that we have failed to some extent to get the benefit from this association that we should. Yet we have made considerable improvement, notwithstanding.

There are plenty of things that we can still do. In fact, we have not yet learned a method of co-operation. Each one stands alone on his rights and on his own territory and feels that he, alone, is responsible for the situation. It is needless to tell you that we have had some nice sociable times—some very pleasant recollections. We have had more ladies with us than any other association I have ever attended, and we can surely count on their co-operation. I know that you will agree that the operators' schools are well worth while. Even the plan for having the service man, which was discussed, I believe will result in some good, although we failed to get the service man in the field.

At our meeting a year ago there were several pledges made for the payment of a service engineer for the toll lines. However, we did not secure enough to carry this work on to success. The state association took the matter up, and although it did not choose to follow the plan we had adopted, it did select a man in several different sections of the state with authority to make *suggestions*. So far as I know, this has never been any great success, and I really don't know that there has been any appeal to the representatives in any way. Our idea was a good one, and I think that we should keep up the idea along that line, and I still hold to the original scheme for a service engineer.

As far as I know, this association has been the only advocate in the state for a man who would have the power to go out, look over a line and recommend the necessary changes to make it a commercial line, to fill the requirements for which a toll line was built. As long as we have no man of that kind, we cannot help but make more or less of a failure of our toll line situation. I recommend this phase of the work to my successor and I believe that he will find this one of the most important things which have been worked out in this state.

There are many things that will come up in the next few years for legislation in regard to our relations to the public, and our relations to the public service commission. While each of us may have some proposition different from our neighbor, still, the man who stands alone will not be getting the benefit he might receive if we stood closer together and made common cause. We would have more influence as a body than as individuals.

Take the matter of taxation alone. Our company operates an exchange where one dollar of every twenty that we collect rolls to the tax collector. Is that just taxation? What is to be the end of it? It is not practical to go before the board of taxation on a matter of this kind, because it will not lower the taxes and, if we do not look out, it will raise them still higher. United action by an association might correct some of these things—call attention to them. As a point of fact, a telephone company creates no value, absolutely, and is nothing but a service proposition, and any tax that we pay is an indirect tax on the patrons themselves, or should be.

I really can see no reason why a telephone company, or a service company, should be taxed at all, because it makes that much more work for some official to collect that tax, and then *we* must collect it from our customers.

Making a Valuation of a Telephone Plant.

In the matter of our relations to the public service commission, take the method of valuation. It is a well-established principle at this time that the commission shall make a valuation on a replacement value. I appeal to you. Do you think that is a fair proposition? We are original pioneers. Go back, if you will, to the days when our forefathers settled this country; when they took up claims and cleared land, erected dwellings, built churches, school houses, dug ditches, made roads, built public buildings, and brought civilization to the wilderness.

If a man should go out now to estimate the value of one of these beautiful farms, if he should say this land originally cost you $1.25 an acre, this fence along here cost you 49 cents a rod and the erecting 17 cents a rod, the building of this road cost you $2,000 a mile, your residence only cost you $4,000, your barn cost $2,000—now, taking that all together, do you suppose for an instant that he would take approximately that valuation? No. Then I can see no reason why the pioneers in the telephone business should not reap some of the benefit for being a pioneer.

Our company at Plymouth owns a franchise which provides that we should give a bond for $5,000 to liquidate any claims or judgment that might be secured against us for infringing on patents. In other words, we took the chance—we were pioneers.

Rights of Pioneers in the Field.

I can see no reason why we should be deprived of some of the benefits of being pioneers any more than that the early settlers should be deprived of their rights in the increase of value in that in which they were pioneers. Recently I had a talk with the man who secured the first franchise for our telephone company. This man, Mr. Van Vactor, told me that the requirements were that they should have 35 telephones before the franchise should operate—35 bona fide subscribers—and that the one man who was most visionary said he supposed that they would have more than 100 telephones, while few conceded they would have more than 50 or 75 at the outside.

There was no precedent to go by. In a short time they had exceeded their guess and the old Eureka fire alarm board which they had in place of the switchboard. They had telephones without switch hooks. We have some there yet; one that you pushed a button to ring, and pulled it out to talk and pulled it farther out to disconnect everything.

The apparatus was of the crudest kind, and it was only a short time till they found they could secure material of new design which was a great improvement; so these men went ahead and put in new equipment. The old equipment was out of date, although not worn out, and had to be replaced with new. When I am at home I can look out of my office window and see a pole that was replaced five times, not because the pole was worn out, but because it was outgrown and the plant needed more room.

When we took the Plymouth plant nine years ago, I told my board of directors, after a careful survey, that I believed we would ultimately have a plant of a thousand telephones. So we made our plans accordingly. Today there are approximately 1,400 telephones and the plant is still growing. Our cable is full; our switchboards are full, and our plant is full in every way—yet that has been only nine years ago.

Going back to those early days you could hardly figure the depreciation of the plant to make up for the changes that were bound to take place, the growth, the obsolescense, and yet, when a man comes to value our plant, there is nothing of that taken into consideration. If this association would bring that up before the utilities commission in a way to show that we are entitled to some consideration, we might yet secure a recognition as pioneers.

Many of the original telephone men have fallen by the wayside—many of them have had their entire available fortunes invested and have fallen. They have gone out of the telephone business poorer than when they went in. Yet, none of these things seems to occur to the public utilities commission as being worthy of consideration. I believe that this feature alone is worthy of our continuing this association and getting closer together on this proposition—standing shoulder to shoulder to see that we get our rights.

Dollar-a-Month Service.

There are many telephone companies in Indiana whose average rate for the month is very little over one dollar. The average rate of our exchange is very little over a dollar a month, and, were it not for our splendid toll business, we could not expect to give good service and not get in the hole. I believe that the time has come when the dollar telephone service is bound to go, and I think that it would be to our mutual advantage to make that advance. I think that our association might well consider these points and stand together on that proposition.

Another trend of thought that I want to present to you is in regard to the relations we have with the Bell telephone company. Before I start, I want to tell you frankly that our company is connected with the Central Union company and very harmoniously and agreeably. We have found them to be square and upright in every particular—and yet I want to issue this warning to you:

I believe that the time may come when it will be up to us to stand together in regard to the Bell telephone company. The Central Union, as you know, is simply a subsidiary of the great American Telephone & Telegraph Co., and it just does the bidding of the great chief. No matter what command comes, the Central Union officials must do the bidding of the Bell company, regardless of their past or present relations with any company.

I say this not because of any ill-feeling or prejudice, but because I feel that our interests are not always identical with those of the Bell company. Sometimes our interests must conflict.

We are most of us connected with the Bell company for our toll business. While I recognize that most of us have received the best of treatment, and have no kick coming, I want to ask you one question: Do you know that in your contract by which you do business with them it states that the Bell telephone company has the right to dictate what shall be A. T. & T. business and what shall be Central Union? That they can, at any time that they desire, change your routing and take your business through certain points and call it A. T. & T. business and give you 15 per cent. instead of 25 per cent.?

You all realize that the 15 per cent. is starvation pay on commission, yet we are not in a position to have anything to say as to what shall be A. T. & T. and what shall be Central Union. Take that point home with you and think about it—the time may come when it will be needful for us to stand together and assert our rights on this proposition. I want to remind you of the old fable story of the man who had seven sons who were constantly quarreling.

You will remember that he brought to them one day a bundle of sticks, seven in number, bound together with thongs, and asked each one to try to break them. After all had vainly tried to do so, he took the sticks from them and said: "Why, it is the easiest thing in the world to do." Then he severed the string and broke them one by one. They all cried out that was easy to do, and he told them that was the very idea he wished to bring before them. So long as they stood together, they were a power in the world, but when they were each one for himself, they were easily broken.

I have heard some of you say that this is a different kind of a problem—that the present Bell company is a different kind of an organization than what it used to be. But we had an experience with them ourselves which I will tell you simply to show you that things happen very quickly.

About five years ago we had a line through Laporte

over the Independent connections by which we had a certain outlet for Bell business. A representative of the Central Union Telephone Co. came down to see Mr. Daniel at Knox to talk over some of the business that was going that way. Mr. Daniel, not wishing to assume the responsibility of deciding the point in question, told him that I was going away and that he wanted to take it up with me before deciding. I was on a visit to Ohio to be gone for probably three weeks, and upon my return, he told him, we would take the matter up.

Now, you must remember that this was only about five years ago. Before I was scarcely out of the city a representative of the Bell telephone company was there trying to see if by some method he could get a franchise giving them the right to do business in the city, believing that they could scare us into making a contract with them. He told the council that we had refused all kinds of reasonable offers and that we were withholding something by which they could get long distance.

An Example of Unfair Bell Tactics.

I left home on Thursday morning and on Sunday morning, away down in southern Ohio, I received a telegram giving me a long story of how the Bell company had applied for a franchise and that the matter was to be decided on Monday night. There I was, worse than Sheridan, for Sheridan was only 20 miles away, while I was more than two hundred. I sent a telegram telling them that I would be home.

Imagine, if you can, my feelings as I journeyed towards home—how that underhanded action of the Bell telephone company appealed to me. Every dollar I had in the world, except a little handful invested in household goods, was tied up in the telephone company, and the Bell trying to take an underhanded advantage.

That was only five years ago. The same men have control of the Bell telephone company who controlled it then, and whatever they find to their advantage they will accomplish if possible. I traveled all day on Monday and when I got there, met with the council and told them that we had been willing to meet with the Bell telephone company on a fair proposition and that they now were trying to drive us out. We succeeded in getting a promise from the individual members that they would not give the Bell company a franchise during our absence.

At that meeting I saw a telegram sent from the Bay State away down close to Boston—to one of the members of our council urging him to give favorable consideration to the franchise that was to be presented that night. Needless to say, the franchise was not presented. The Bell company representative denied all knowledge that there was to have been one. But I never told them of that telegram I had seen and that I knew the franchise was to have been presented, and that the fellows close to Boston knew about it also.

I believe that this is one of the needs of the association—that we can well afford to spend a few days together every year—for I still have more confidence in my neighbor Scott at Warsaw, and Stoops, of Nappanee, than I have in any member of the Bell company. I think we have more interests in common than do the Bell company and ourselves. During the last state convention there was a motion made to allow any telephone company to become members of the state association. I voted against this motion, because I believed that it was advisable for us, as Independent telephone men, to have a place where we could go and discuss these things without the intervention of any other company, the interests of which we know are not the same as our own.

I don't blame the Bell telephone company, particularly—it is simply a matter of business. It has simply set out to accomplish certain things by certain means. Perhaps they are not over-scrupulous, but at the same time it is perfectly legitimate for them to take that advantage if they can. I think it is to our advantage to stand shoulder to shoulder in this proposition and when these contracts run out and are to be renewed, it will be to our advantage to see each other and talk to each other.

I am not overly-enthusiastic over a large district convention; in fact, I believe that a small district can do more good, we get around better and get acquainted better than a large one. I have never yet received a visit from a telephone man but that it resulted in some benefit to me. It may have taken some of my time, but it always resulted in some good.

I used to be in the lumber business at Winchester and had a great many traveling men call on me. I was a very busy man at that time and they often said to me: "Well, if there is nothing you want from me, I will go back to the hotel and write some letters." The hotel was not such a very congenial place to loaf and I had one reply for them—that I would put my time against theirs, and if I could not learn enough from them to pay me for my time, their company had better get them off the road.

I want to urge upon you the advisability of going individually and calling on your neighbor. Get acquainted and talk over the situation! Many of the things we have learned were from our neighbor, and yet we don't take the advantage of it we might.

One day not long since, I attended an Epworth League meeting and heard the general secretary tell this story:

One morning up in his summer home his wife was baking some pancakes. They were not any of these little fellows about the size of a dollar, black on one side and white on the other, but were just a golden brown on both sides with golden butter floating on top of them and the whole thing floating in genuine maple syrup.

After awhile he noticed that his wife had removed the griddle, and he turned to her and said: "Wife, you should not do that. Before you stop you should say: "My Lord, will you have some more pancakes?'"

Then she repeated after him: "My, Lord! do you want more pancakes?"

He gave that as an example of emphasis—of misapplied emphasis—and I want to emphasize the necessity of paying your dues. It strikes me that at this time we should pay our dues. You may think, "My, Lord! do you want more money?" but, gentlemen, I believe that the time may come when we will need this money.

The Need for Co-operation.

It is a matter of insurance at this time. The telephone business is becoming a big business. We have our rights to look after and it is going to take concerted action. If one of us goes before the tax commission as an individual, we will not get much consideration. If one of us goes before the public service commission on some point that is tabooed, we are not going to get much consideration; and if one of us goes before the Bell telephone company, we are not going to get much consideration. But if we all stand together on these propositions—and I have only mentioned a few of them—we have far better prospects of success.

As I said before, I am a believer in the principle of the service engineer and I hope to see this thing done yet; I hope it will be accomplished.

Operating Income of Mountain States Company for April.

The operating income of the Mountain States Telegraph & Telephone Co., of Denver, Colo., for April increased 1 per cent. over the corresponding period of 1915, and for the four months ended April 30, 1916, the increase was 1 per cent. over the corresponding period of 1915.

Just a Few Thoughts

Mere Size—Elephantiasis—Paying the Penalty

By J. C. Kelsey

Every boy loves the circus and, judging by the number of people who accompany the boy, it goes to prove that older people have the same affection for the sawdust ring.

Do you remember how you regarded the giant? He towered above you in majestic splendor, and his great size made you wonder what damage he could do if uncontrollable temper willed that great body. You looked for his seven-league boots and other evidences of story-book power which gladdened your childhood.

But the giant has no seven-league boots. Neither has he any extraordinary power or strength. He is but a sick man, suffering from an incurable disease, which saps both mind and body—in fact, he is but a human monstrosity. Your great giant on exhibition may live to be 30 years or less. He merely typifies a bluff of Mother Nature—a mistake which can for a time be concealed under a pretense of great size. So it is with monopoly.

Monopoly is a bluff of Industrial Nature. It has no seven-league boots, nor has it extraordinary power or strength. It is a sick industry, suffering from incurable diseases which sap both its body and the minds of its employes.

A monopoly, in fact, is but an industrial monstrosity. It may live a few years but the mark of death or dissolution is upon its brow, and no wise man can be fooled by its gigantic pretense. It merely typifies a great industrial bluff. It is the great ass disguised in the lion's skin. It is only a question of time until the braying will expose its true identity.

American Telephone is a giant born of disease. Even at its birth, evidences of monstrosity were present. First of all, it demanded of its licensees just 35 per cent. of the stock of the company newly organized. It thrust upon the helpless licensee victim, the further necessity of paying 4½ per cent. of its gross earnings to the newly-conceived giant.

It gave its deluded victim an exclusive manufacturing contract in which the giant had 97 per cent. of the stock of the factory. It inflicted curious one-sided long distance contracts upon its dependencies. So a giant was born in a day which was to terrify the world and make it tremble with its tread.

Look this American Telephone giant over: He does look strong, for his frame is large—size always fools us. A physician's examination reveals a strong New York Telephone spine—a giant surely must have a good back. He has a New England Telephone heart, fairly strong but somewhat weakened by a monopolistic lack of exercise.

He has Chicago Telephone arms and Southern Bell legs—both quite sturdy and capable. His Pioneer eyes are good. He has Southwestern Telephone lungs which any insurance company would accept, and you would think that such a giant would live long and be healthy.

But the giant has a Central Union stomach, complicated with duodenum ulcer. You have heard how important a stomach is and how armies depend upon that organ. Proverbs teach us that no man is stronger than his stomach, hence we may well be thoughtful of any industrial giant which has a Central Union stomach.

No insurance company overlooks the kidneys of any man, and it is not difficult to see that the big telephone giant has Missouri & Kansas kidneys, complicated by an Iowa Telephone appendix and Northwestern gall stones. No insurance company, unless it is crazy to sell insurance, will accept this patient. All of this goes to show that finance, generally, makes superficial examination, particularly of so-called giants.

Some of the early disease of the telephone giant resulted in the recent major operation on Central Union.

As every telephone man knows, the greatest battle of legal and industrial history has been fought by minority stockholders over the proper conduct of this great Bell company which covers three of the greatest American states—Ohio, Indiana, and Illinois. The decision has not yet been handed down to the expectant litigants but it is safe to say that 1916 will record it.

Another great suit has been filed in Chicago. As every reader knows, the opulent Bell giant paid $6,300,000, rather tried to pay it, for the Automatic telephone property in Chicago.

In this philanthropic deal, in which several million dollars were to be given away, both the Bell giant and its Chicago licensee were to share the loss. But a stockholder of the Chicago Telephone Co. objects. He has come forward to ask why such a sale should be allowed when the company dissipates his assets. Otto Cullman, backed by Attorney Fayette B. Munro, has come forward to question the health and sanity of the opulent giant of modern times, and save him if possible from early death.

As a stockholder of the Chicago Telephone Co., he protests that the sale of the automatic telephone property is a step toward an illegal trust. It further makes the company amenable to great fines, and therefore injures his equity. He asks that the stock of the Chicago Telephone Co., owned by the Bell giant, be sold within a reasonable time by the court and new directors elected.

He also asks that the Bell giant be forced to relinquish the collection of the famous 4½ per cent. levy, and behave in a reasonable manner. Thus we find that the Chicago Telephone arms of the Bell giant are diseased and subject to paralysis.

The telephone giant has already developed a peculiar mentality—he forgets easily and conveniently. Unless any conversation is down in black and white, this giant cannot remember it over night—unless it is necessary.

He often puts the cart before the horse, as was shown in the report of the toll line contract committee of our national Independent telephone association in last week's issue of TELEPHONY.

It is reported that he has the habit of setting his watch by convenient steam gauges, and is known to laugh out loud in the watches of the night.

The Bell giant once offered to mediate the question of a long distance contract with the national Independent telephone association. A toll line contract committee was appointed and went into conference with a like committee from the American Telephone.

The studies proved conclusively that the plans pro-

posed were practical and should be put into action at once. But the Bell giant backed out on the ground of policy.

Just why policy should not have been evident at the outset remains to be seen, unless it was one of the Bell giant's jokes, which causes the loud racuous laugh so often heard by watchers. It is evident that the 30-year-old giant is developing childishness as well.

In addition to other diseases, this telephone giant has and still shows traces of cowardice. He will not fight unless his back is forced against a wall.

He dreads hearings before commissions and courts and, when brought to bay, puzzles the courts with fantastic jargon. He will do anything to get a continuance, believing that he who fights and runs away may not have to fight again at all. He can give more excuses than a plantation cook—policy, confiscation, expediency, and divine right being in predominance.

In fact, every man with intelligence now knows that *further parley with this sick and irresponsible giant is a waste of time and money.*

No great battle really commences until after the skirmish lines have had their inning. First, a regiment goes forward, and is driven back by two regiments of the enemy. Four new regiments go forward and drive the enemy back, and so with increasing energy the battle manifolds itself, and the great forces meet.

In our telephone lives, we have had a preliminary battle to fight which had to be fought out before the main engagement. Curiously enough it was an engagement which the main operating forces of Independent telephony could not give maximum help.

But the manufacturers have extricated themselves and can now join the main body for immediate action. Many of our readers have criticized us for our persistent fight on the Western Electric situation, but I have always believed that strategy demanded this battle first.

Never in our history is time so propitious for a general and successful fight. Never before has a resolution meant so much as it does today; and never before has an association adopted one with greater force, as well as conviction.

Read over H. Linton Reber's ringing resolution, unanimously adopted by the directors of the United States Independent Telephone Association. It will be a classic as time goes by, because it was born at a time when all Independent telephone men, for the first time, are unanimously face to face with one enemy.

All parleys are over. All flags of truce are withdrawn, and it is a case of "You may fire when ready, Gridley."

Read these paragraphs:

"Whereas, such a monopoly would be a great detriment to the welfare of the people of the United States in that it has been thoroughly proven that telephone service is inferior and that rates are higher where such a monopoly exists, and that such a gigantic monopoly as the A. T. & T. Co. now is, will be, if such policy is continued, a menace to the safety and welfare of the people of the United States.

Now, Therefore, Be it Resolved, That this association through its president, express these sentiments to the Attorney General of the United States, and deliver a copy of this resolution to said Attorney General and *Protest against* the merger of said companies or the *granting of a monopoly* of telephone field in the city of Chicago, under the conditions of the present commission's order; and that this *association* further *objects to* the adoption of any *policy* on the part of the government of the United States *encouraging* or *allowing* the *amalgamation* of the A. T. & T. Co. with its competitors, and thereby resulting in a monopoly of any telephone field, *unless such field so monopolized shall be thrown open to all* telephone companies and subscribers and *telephone users for connection* therewith *under* like *terms* and conditions as those *now* existing.

Never was a more masterly document presented, and further, at a time when all men unanimously realize the necessity of action and can take it. The only reason we have failed to secure every concession we want is that there has been a seeming division of Independent desires.

The Bell giant has imagined that we were fighting among ourselves—a delusion always indulged in by enemies. If you do not believe it, look at the Berlin reports of Allies' friction or a London report of separate peace for Austria and Turkey.

We were only fighting for different things against one common enemy and no split ever existed. The removal of Western Electric piracy simply gives us the advantage of unified over divided strength and energy.

No government, attorney general, or commissioner is any stronger than the weakest link of public opinion. Public opinion is solid for a square deal.

Public opinion no longer contents itself with the fact that the malefactor has it, but insists upon knowing how he got it—and no one shrinks from public opinion quicker than the so-called telephone giant.

He has made a pitiful appeal to the American people but it has fallen upon deaf ears, simply because of his natural weakness. No corporation has power over the natural tide of popular opinion, nor can it guide or resist its flood.

All that Independents need to do is to stand firm upon the foundation of their rights, and the telephone giant will soon go crying to Washington for further repentance.

The giant is not well. He will not fight, and no one knows it better than his management. Like an insurance company, he cannot stand still and meet the fullfilment of his obligations. He must go wearily forward, keeping up the bluff until he stumbles into the dust of failure.

We know that the giant is sick—it says so in the balance sheet. The diagnosis is plain, let us press the advantage.

The telephone business is a good business and we have a right to that which we have cultivated. It never was a good business until the Independent telephone man sprang into it and gave it to the world.

It is a poor time to give it up or let it be taken from us. We should reap the benefit of our industry. We should realize by this time that the telephone is a local issue, and we should drive it home.

MORAL: No more parley.

Earnings of Cumberland Telephone & Telegraph Co.

The operating income of the Cumberland Telephone & Telegraph Co., of Atlanta, Ga., for April, increased 18 per cent. over April, 1915, and for the four months ended April 30, 1916, the increase was 7 per cent. over the corresponding period of 1915. The number of stations on April 30, 1916, totaled 199,420, a decrease of 3 per cent.

Quarterly Meeting of Western Pennsylvania Independents.

The Western Pennsylvania Independent Telephone Association will hold its next quarterly meeting at the Lawrence Hotel, Erie, Pa., on July 21 and 22. President W. H. Wilson will entertain the members with a piscatorial banquet.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies, Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchises, Rates and Service

Final Arguments Begun in Central Union Suit.

On Wednesday, July 5, the final arguments were begun in the Central Union minority stockholders' suit before Judge Dever in the Cook County Superior Court of Illinois, at Chicago. This is the culmination of the legal battle which has extended over a period of about three years.

In the early part of 1914 the minority stockholders were successful in their efforts to have the properties of the Central Union Telephone Co. placed in receivership, Judge Dever, on January 31 of that year, having approved the appointment of the three receivers agreed upon by the parties involved in the suit. The receivers—David R. Forgan, Frank F. Fowle and Edgar S. Bloom—have been, since that time, and are now in full charge of the operations of the Central Union properties.

The outcome of the suit will be of great interest to the Independent telephone field in Illinois, Indiana and Ohio. It is not likely that a decision will be rendered until fall.

Toll Between Chicago and Oak Park, Ill., Illegal.

Justice of the Peace W. Stevens Lewis, of Oak Park, Ill., in a decision handed down last week, ruled that the 10-cent rate between Chicago and Oak Park is illegal. The decision was rendered in a suit brought by M. J. Stein, an attorney residing in Oak Park, against the Chicago Telephone Co., to recover $2.30 in tolls paid under protest and alleged to have been an excess charge. Mr. Stein's contention that a 10-cent toll rate between Oak Park and all parts of Chicago, except Austin, where a 5-cent rate obtains, constituted discrimination, was upheld by the court and a judgment entered in favor of the plaintiff. Mr. Stein also asserted that the toll rate to the Lawnsdale and Rockwell exchange in Chicago is 10 cents, while to Cicero no toll at all is charged, although these exchanges are within the same building within the city of Chicago.

Mr. Stein is fighting for a 5-cent toll for all calls to Chicago from within Cook county. This would affect the following towns and villages with about 75,000 telephone subscribers: River Forest, Forest Park, Broadview, Maywood, Melrose Park, Bellwood, Hillside, Berwyn, Lyons, Oak Park, Proviso, Riverside, Stickney, Summit, Argo, Hodgkins, Western Springs, La Grange, Spring Forest and Brookfield.

Attorneys for the telephone company, it is understood will appeal the case.

Right of Telephone Lines to Cross Railroad Right of Way.

A railroad company, having only an easement in its right of way, does not own to the sky, and cannot enjoin the crossing of overhead telephone wires so long as they do not impair the reasonable and safe use of the easement. During the pendency of an action to enjoin telephone companies from constructing lines across a railroad right of way, defendants erected new poles and strung wires thereon properly, the previous construction being defective. The court held that costs in lower court should be paid by defendants, while costs of appeal should be paid by appellant railroad company. Illinois Central Railroad Co. vs. Centerville Telephone Co.; Supreme Court of Tennessee; 186 Southwestern, 90.

Severing Connection With Line.

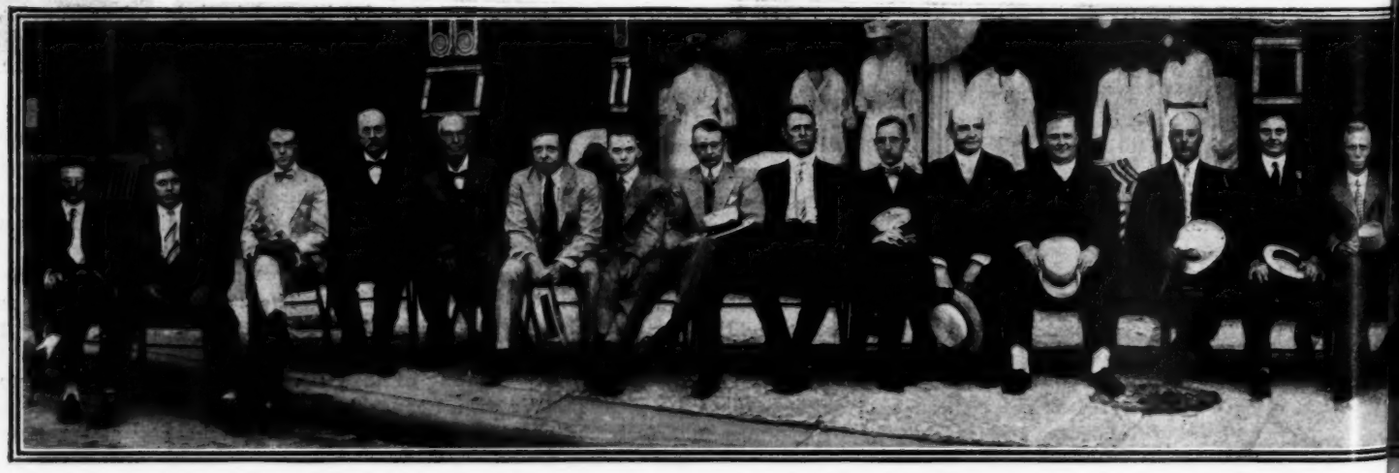
A division superintendent of the defendant telephone company, in carrying out orders from its general manager to sever the connection between one of its lines and a line of plaintiff, by mistake made the severance beyond the point of connection, removing several hundred feet of wire from plaintiff's line and retaining two of its instruments, in the belief that they were the property of defendant. The court held that this affords no ground for recovery from defendant of punitive damages. In the absence of any statute or contract requiring connection to be maintained between the lines of two telephone companies at a common point, it is within the right of either company to sever such a connection. Memphis Telephone Co. vs. Cumberland Telephone & Telegraph Co.; United States Circuit Court of Appeals; 231 Federal, 835.

Summary of State Commission Hearings and Rulings.

CALIFORNIA.

June: The commission authorized the Los Gatos (Cal.) Telephone Co. to sell 150 shares of its capital stock at $10 a share to take up certain outstanding notes.

June: Petition filed by the Nevada, California & Oregon



Those in Attendance at the Meeting of the Southern Indiana Independent Telephone Owners' Association, Held on Tuesday, June 20, [illegible]

Telegraph & Telephone Co. for authority to issue $15,000 6 per cent. bonds at 80 per cent. of par to raise $12,000 to build toll line 25 miles long in Modoc county.

COLORADO.

July 12: Continued hearing on the investigation into the reasonableness of the rates and adequacy of the service of the Mountain States Telephone & Telegraph Co. in the state of Colorado.

IDAHO.

June: Application filed by the Pacific Telephone & Telegraph Co. for permission to change its long distance rates between Cottonwood and Grangeville from 25 cents for the first three minutes and 10 cents for each succeeding minute to 15 cents for the first minute and 5 cents for each minute thereafter.

ILLINOIS.

July 5: Hearing in the case of T. Z. Creel, manager of the reorganization committee of the Western Illinois Telephone Co., vs. the Golden Farmers Mutual Telephone Co., on complaint of refusal of the respondent company to make connection with the line of the complainant at Golden, Ill. Case 5,011.

July 5: Hearing on joint application for approval of a contract for the purchase of the Beecher City Telephone Co. and approval of the sale by A. C. Larimore, the owner of the company at Beecher City, Ill. Case 5,027.

July 5: Hearing on application of the Beecher City Telephone Co. (P. R. Phillips, president) for a certificate of convenience and necessity to operate a telephone system in Beecher City, Ill., and vicinity. Case 5,028.

July 5: Hearing on application of the Beecher City Telephone Co. for an order authorizing the issue of its capital stock in the amount of $2,500. Case 5,029.

July 5: Hearing in the matter of the application of the Niantic (Ill.) Telephone Co. for an order authorizing the issue of $3,000 of its common capital stock, the issue of $8,000 of its preferred capital stock, the issue of $8,000 par value of its first mortgage 6 per cent. gold bonds and authorizing the execution of its deed of trust to Walter Pritchett as security. Case 5,153.

July 6: Hearing in the matter of the application of the Murphysboro (Ill.) Telephone Co. for an order authorizing the issue of its notes in the amount of $6,000. Case 4,231.

July 6: Hearing in the matter of the application of the Baker Telephone System for an order authorizing the issue of its notes in the amount of $6,000. Case 5,234.

KANSAS.

June 27: The commission granted the application of A. B. Person to sell the Selden (Kan.) Telephone Exchange to E. B. Danielson.

September 12: Postponed hearing on application of the Missouri & Kansas Telephone Co. for permission to increase its rates at Wellington, Kan.

MARYLAND.

July 1: Hearing to consider the new suburban rates proposed some time ago by the Chesapeake & Potomac Telephone Co.

MINNESOTA.

June 30: Hearing in the matter of the application of the Star Telephone Co., Farmington, Minn., to increase its local exchange rates at Farmington, Lakeville, Rosemont, Mendota, Prior Lake, New Market, Webster, Lonsdale and Northfield.

MISSOURI.

July 5: Hearing at the Rebediux Hotel, St. Joseph, Mo., in the case of the Harrison County Mutual Telephone Co. vs. the Worth Mutual Telephone Co., in which the discontinuance of service is involved. Case 977.

July 6: Hearing at Hotel Baltimore, Kansas City, Mo., in the case of H. C. Schauber vs. the Western Union Telegraph Co. The complainant asks that the defendant be required to furnish him with a fast wire and ticket service. Case 891.

July 7: Hearing at Hotel Baltimore, Kansas City, Mo., in the case of the Texas Prairie Telephone Co. vs. the Oak Grove Telephone Co., of Oak Grove, involving the question of rates for service. Case 940.

July 10: Hearing in Jefferson City, Mo., relative to the valuation of the plant of the Central Missouri Telephone Co., of Fulton, Mo. Case 852.

September 18: Hearing in the matter of adopting a uniform system of accounts for telephone companies. Every telephone company in the state has been given notice that it will be expected to be present or to be represented, and to introduce any evidence necessary to assist in the promulgating of a uniform system of accounts for telephone companies. Case 937.

September 18: General conference in which representatives of all telephone companies in the state are to meet with the commission and to introduce all testimony and evidence required in the adoption of uniform rules, regulations and practices for telephone companies, relative to all charges, deposits, contracts or guarantees for all kinds of service and connections. Case 938.

MONTANA.

June 26: Agreement reached between representatives of the Mountain States Telephone & Telegraph Co. and the rural lines in the state to limit calls on rural lines to five minutes. Where a friendly chat is being carried on and a subscriber desires the line for business, the time will be cut to three minutes.

NEBRASKA.

June: The commission authorized the Northern Antelope Telephone Co., of Neligh, Neb., to put into effect the following rate schedule: Individual business teelphone, $2.25 per month; individual residence telephone, $1.25; farm line telephone, $1.75; extension sets, 50 cents.

June 30: Final hearing on the application of the Kearney (Neb.) Telephone Co. for permission to buy and the Nebraska (Bell) Telephone Co. for permission to sell the exchange of the Nebraska company in Kearney, Neb. Permission to increase rates is also asked by the Kearney company, which will consolidate the two exchanges if the desired permission is granted.

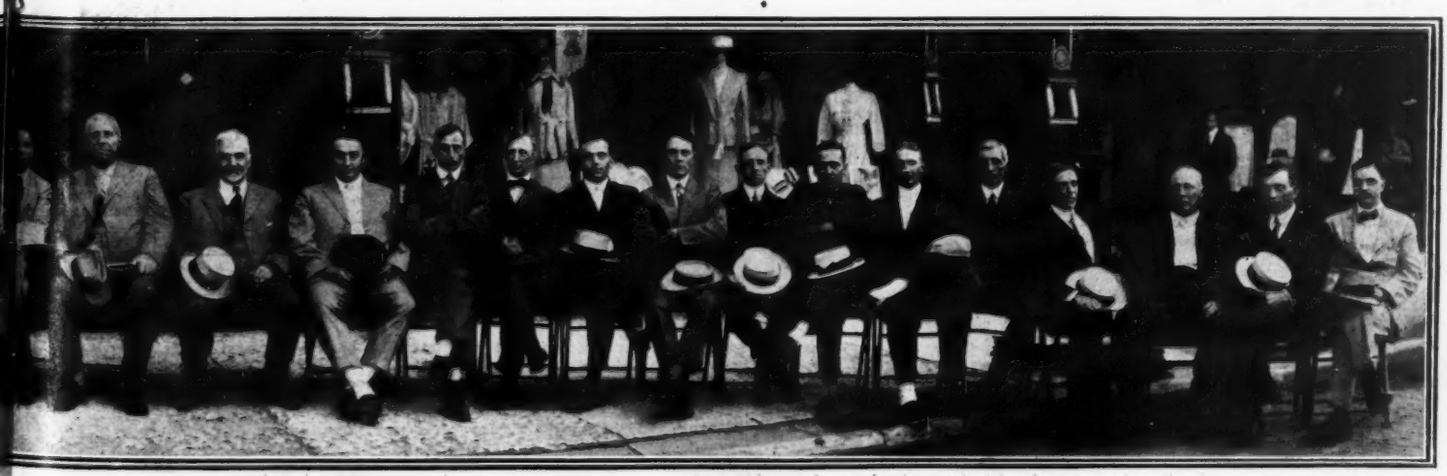
OHIO.

June 29: The commission authorized the Hillsdale County Telephone Co., of Osseo, Mich., to sell to the Williams County Telephone Co., of Bryan, Ohio, all of its property and assets in the state of Ohio, and to form a physical connection between their respective telephone plants and systems and to interchange service, as provided by law. Order 783.

June 29: The commission authorized the Wapakoneta Telephone Co. and the receivers of the Central Union Telephone Co. to establish a physical connection between their respective telephone plants and systems and to interchange service, as provided by law. Order 876.

WASHINGTON.

July 5: Hearing on application of the Mutual Rural Telephone Co. for permission to construct and maintain a telephone line on certain county roads in the vicinity of Alpha, Wash.



Seymour, Ind.—One of the Live Independent Organizations in Indiana Which Is Doing Much toward Creating Interest and Enthusiasm in the State.

Highest Telephone Line in the United States

Argentine Pass, 14,250 Feet Above Sea Level, Highest Point Over Which a Telephone Line is Maintained —Character of Construction and Difficulties Encountered in Maintaining the Line—Presented Through Courtesy of the Southwestern Telephone News

By Sidney D. Wilburn

Argentine Pass, 65 miles west of Denver, Colo., is the highest point in the United States over which a telephone line is maintained, the elevation above sea level being 14,250 feet.

Over this pass the Mountain States Telephone & Telegraph Co. maintains its direct line of six copper circuits to Grand Junction, Colo., and other towns in the rich mining and fruit country on the west slope of the Rocky mountains. Here the Mountain States company's line crosses the Great Continental Divide, on the tiptop of the Rockies at their highest point.

Poles on Argentine Pass Must Be Limited to Height Shown.

For the benefit of those who may not be familiar with the manner in which the term "pass" is used with reference to points of crossing mountain ranges, it may be explained that a pass is not a point where one "may pass over," but rather a point where one "must pass over," to get to the other side. Looking only at the pass itself one can see no reason why any other point on the range would not have served just as well for passing purposes. However, on further examination of the surroundings, one can see that for miles and miles in all directions the point is surrounded by what appears to be a forest of mountains.

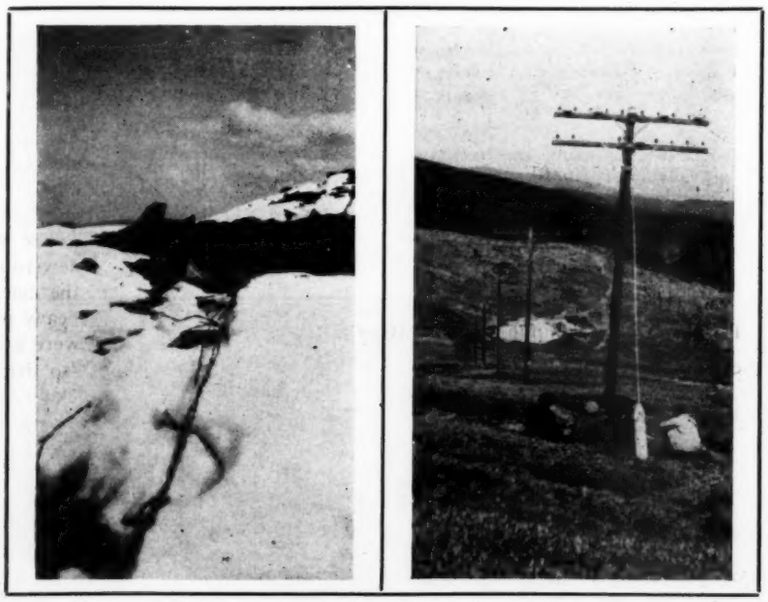
The approach is through canyons on either side. It looks as though nature had started at each side with the intention of cutting a way through the range and after getting within three miles of completion she suddenly abandoned the work, leaving the pass between. This, however, was not to be a sea level canal as the canyon elevates 7,000 feet between the mouth and the head. The snow water rushing down this steep incline furnishes almost an unlimited supply of power.

Through these canyons, each of which is about 60 miles in length, the pole line is maintained to the foot of the pass, leaving a gap of about three miles between the terminals. A pole line cannot be maintained through this gap, as the usual velocity of the wind is 90 miles per hour. In protected places where the wind cannot get a clean sweep, the line is covered with 15 to 60 feet of snow, in either case the circuits being put out of service.

When the line was built, about 20 years ago, this gap was filled in by three submarine cables buried two feet below the surface. This method proved an expensive failure, the cable being put out of service by a peculiar shifting of the mountain side—a phenomenon not known or even anticipated by the original constructors. Since the cable, several different schemes have been tried with varying successes. At present, No. 14 twisted pair outside distributing wire is used to fill in the gap; the wire being strung out loosely on top of the rocks, leaving plenty of slack so that it may be mashed down in the low places by the snow without breaking. However, this method is very expensive, as the twisted pair wire has to be replaced every year and troubles are frequent, the cost of clearing being from $7.50 to $75 for each case.

Snowslides and "coonies" cause most of the trouble. A coonie is a sort of small 'coon or over-grown rat, and is the only inhabitant at that altitude. For sustenance he seems to depend entirely on copper wire and the rubber insulation, there being nothing else up there to eat. This little animal frequently eats the insulation off of the wires for a distance of 25 or 30 feet and often digs into the copper deep enough to break the wire.

The adventures and hardships of linemen when on trouble trips to the top of this pass are almost beyond description. There is no character of work requiring a braver or more physically able man. At one time this last winter there were four men killed by a snowslide at one point, and there are points near the top of the pass where, should one lose footing on the frozen snow, there could not possibly be any stopping under a distance of ten miles.



Twisted Pair Wire on Ground.—Terminus of Line at the Pass.

The photographs from which the accompanying illustrations were made were taken in the latter part of August, during

which month there is less snow and the weather is more favorable than at any other time of the year. Being an amateur with the camera I spoiled some of the best views. These three illustrate, however, fairly well conditions on the top of the pass during good weather. Conditions in bad weather, when the slopes are ice-coated and the gulches filled with snow, can be imagined.

On the top of the pass the wires must be laid on the ground because of the terrific winds, as shown in one of the illustrations. The poles used must be limited to the height shown in another illustration, if they are expected to stand. In the terminus of the pole line on the east side of the pass, shown in the third illustration, Mt. McClellan may been seen in the distance. The light spot near the center of the picture is the famous Waldorf mine.

Improvements to Telephone Plant at Bloomington, Ind.

The Central Union Telephone Co. has completed extensive improvements in its local plant at Bloomington, Ind. At a cost of $20,000 all lines have been placed in cables to the corporation limits and numerous betterments provided. The local switchboard now has nearly 3,000 drops installed.

New "Wabash" Exchange in Kansas City, Mo.

The Missouri & Kansas Telephone Co. is erecting a new "Wabash" exchange at the corner of 39th street and Montgall avenue, Kansas City, Mo. The building will be of brick and reinforced concrete construction and will cost about $41,000. It will be two stories in height, but will be built to carry a third story. When the building is completed, new equipment costing $64,000 will be installed.

The "Hello" Girl.

By B. Franklin Oneliner.

(With Apologies to Henry Clay Oneliner.)

One day I went to the telephone to call Central.

* * *

Which I did. She answered at once.

* * *

Did she say, "Number, please?"

* * *

Or some intelligent answer?

* * *

No! She simply said,

* * *

"Hello!"

* * *

Now, think of that!

* * *

At this stage of telephony.

* * *

After all that has been written,

* * *

And all that has been said,

* * *

For the special benefit of operators.

* * *

Still she said "Hello!"

* * *

It is hard to believe,

* * *

But it is true.

* * *

That reply was of no benefit to me.

* * *

How did I know

* * *

Whether that voice belonged to an operator,

* * *

Or to some of the would-be Centrals,

* * *

Who always hang on the line,

* * *

Or whether it was some party 100 miles away?

* * *

I hated to do it,

* * *

But I had to ask her who she was.

* * *

And she said: "This is Central. What number did you want?"

* * *

It is wrong to talk to the operator,

* * *

But I said,

* * *

"Why didn't you ask for the number in the first place?"

* * *

She replied, "We don't do that way here."

* * *

Now she was an intelligent girl.

* * *

And she had a Manager,

* * *

And a General Manager, too.

* * *

But she had never been coached

* * *

On how to talk

* * *

Like a *real* operator.

* * *

You can't blame the girl.

* * *

Most of the other operators up and down the line

* * *

Used the same expressions.

* * *

They were simply uneducated.

* * *

No one had taken the trouble

* * *

To explain to them

* * *

How nice and smooth the service is

* * *

When all the operators along the line

* * *

Use proper language.

* * *

They tell us

* * *

That the time will soon come

* * *

When the "Hello" species of operator

* * *

Will be extinct.

* * *

Let's all boost

* * *

For that time to come soon.

Some Interesting Telephone Troubles.

Following some very heavy rains in the Southwest during the past weeks, a Dallas, Texas, newspaper remarked that "Local telephone and telegraph companies have suffered considerably from water on the cables." This new malady of telephone companies in Texas should be referred to the telephone engineers of the country for a remedy.

The expression calls to mind the explanation printed in a newspaper in a small Arkansas town sometime ago, telling why the telephone service there had been disturbed after a very heavy wind. "The wind blew a lot of wires together, and they were crossed over one another," gravely announced the paper, "so that when a conversation started out on one line it would likely jump to the line it was crossed with and go to the wrong telephone."

Such activity upon the part of a conversation would naturally result in considerable confusion in the service, one would think.

Ohio State Earnings for May.

The gross earnings of the Ohio State Telephone Co., of Columbus, Ohio, for the month of May, were $296,892, as compared with $268,802 for May, 1915. The expenses, including taxes and insurance, totaled $184,568, making a net income of $112,324, as compared with $112,500 for the same month a year ago. The net earnings for May were $65,856, compared with $66,460 for May, 1915. The balance available for depreciation, financial requirements of the company and dividends on common stock is $39,768, compared with $40,372 in May, 1915.

Methods Employed in the Valuation of Physical Properties

Some Details of the Methods Employed by the Wisconsin Railroad Commission in Constructing an Inventory and Making a Physical Valuation of a Telephone System—Paper Presented at Convention of Wisconsin State Telephone Association

By C. M. Larson

The problem confronting managers of telephone plants are many and varied, but it is not the purpose of this paper to enumerate or discuss them. There are, however, certain general classes of these problems which are of special interest to the state department of engineering, as they require investigations and valuations by that department for the railroad commission. Under the present statutes, the state department of engineering is required to do all engineering work of whatever nature, including valuations, for the railroad commission as well as for all other branches or departments of the state government.

Valuation of the property of a telephone company may be required for various reasons—either for purchase, consolidation, rate increase, decrease, or adjustment—and an idea of the magnitude of this work in Wisconsin may be had from the fact that there are about 806 telephone utilities with over 1,000 exchanges in this state besides the Wisconsin Telephone Co. with 78 exchanges. The railroad commission receives reports from about 257 companies, including the Wisconsin Telephone Co. These 257 reports show a mileage of pole line in the state of about 25,000 miles, with about 200,000 telephones.

A great many telephone properties have been constructed and operated without due consideration having been given to the total costs of operation. Telephone plants, like all other property, depreciate with use and time. Unless due provision has been made for this depreciation in the schedule of rates, a time is reached when it becomes necessary either to raise rates or give inferior service. Either one of these alternatives is likely to result in dissatisfaction to some of the patrons. In any event, the case often comes before the railroad commission, either in the form of an application of the company to increase or adjust rates, or a complaint of the patrons of the quality of service, the latter often being accompanied with a demand for decreases in rates.

Whatever the occasion of the investigation, if the commission orders a valuation of the property, the engineering department proceeds along certain lines which are the result of a number of years of study and experience. In making the valuation, a great deal of labor and expense can be saved this department, and much better and more satisfactory results can be obtained, by the co-operation of the officers of the company. This paper has therefore been prepared with a view of placing before the companies certain of the details of the methods employed in constructing an inventory and making a valuation in order that they themselves may assist us, and thereby obtain the best possible results at the least cost.

In making a valuation, three sets of figures are desirable, namely: The original or actual cost of the property now used; the cost of reproduction new of the property now used; and the cost of reproduction less depreciation.

Actual Cost.

If it is possible to determine the actual cost in place of the various units of a property, this figure is of great assistance to the commission in arriving at a final figure representing the real value. The determination of the actual cost of the property now used generally involves two processes. First, for the items whose cost is actually shown by the books of the company, the process is simply that of compiling such cost in a way that will permit of ready checking and grouping under proper headings.

It is unusual, however, to find a property that has been in existence more than a few years whose bookkeeping has been such that the actual cost of all items is thus available. In cases where the cost of a certain item is not ascertainable from the books, an estimate, based upon market conditions of labor and material at the time of the installation of the item, should be made and this figure applied. By this method, it is often possible to approximate very closely the actual cost of the property now in use.

Even though we may be able to make a fair determination of the actual cost of the property, it is usually necessary to determine the other two sets of figures, namely, cost of reproduction new, and cost of reproduction less depreciation. The methods to be pursued in these cases are entirely different from that of the estimate of actual cost, and they will be described in order.

Cost of Reproduction New.

Cost of reproduction new means an estimate of the total cost of replacing the present property with new units of the same kind, size and quality as those now used. If present units were second hand when installed, then corresponding second hand units should be estimated. The first requirement is a complete inventory of the property arranged about in the following order:

A. Land:
- A_1—Central office land.
- A_2—Other lands.

B. Distribution System:
- B_1—Poles and wire supports.
- B_2—Aerial wire.
- B_3—Aerial cable.
- B_4—Underground conduit.
- B_5—Underground cable.
- B_6—Substation equipment.

C. Buildings and Miscellaneous Structures:
- C_1—Exchange buildings.
- C_2—Miscellaneous buildings.

D. Exchange Equipment:
- D_1—Manual equipment.
- D_2—Automatic equipment.

E. General Equipment:
- E_1—Utility equipment.
- E_2—General office equipment.
- E_3—Miscellaneous equipment.

F. Paving:
- F_1—Paving over trenching (which has not been actually paid for by company).

H. Material and Supplies:
- H_1—Distribution system supplies.
- H_2—Central plant supplies.
- H_3—General office supplies.
- H_4—Miscellaneous supplies.

The most satisfactory and economical method to be used in collecting data for the inventory will depend upon the circumstances surrounding each case. If a carefully prepared, descriptive map of the system is available, the quantities of wire, poles, cross arms, insulators, brackets, etc., may be taken directly from this and a great deal of field work avoided. But if no such map is available it becomes necessary to collect the data by actual inspection on the ground.

It will readily be seen that if a system map were kept by each company and kept up to date, the work of preparing an inventory would be a simple matter.

Our department has prepared tracings of each county in the state on a scale of one-half inch to the mile, showing all highways. It is the intention to send blue line prints in duplicate to each telephone company having rural or toll lines, with a request that one copy be returned, after showing the location of all such lines owned by the company, and showing also the number of wires on each line, type of construction, etc. It is not our expectation or desire that the companies shall go immediately into the field to gather this data. From a knowledge of the lines it is a simple matter for the superintendent or manager to lay out on the map the location of all lines. As he, or his assistants, travel over various parts of the system, they can readily take notes necessary to complete the descriptive map.

The system might well be divided into sections representing different types of construction, different number of wires, etc. If this is systematically done when the repairman is making his regular rounds, the result will be a record that will be of immense assistance and usefulness both to the company and to this department, while the expense will be but nominal. All this must be collected for an inventory, and if made as suggested, the cost is much less than it will be if special trips are made for this purpose alone.

The scale of the maps, which we propose to send out, is so small as to render them unfit for use in cities and villages. When making an inventory of such property, it is advisable to obtain some kind of plat maps and record the data on these.

In making an inventory of property to be used as a basis for estimating the cost of reproduction, the following points must be kept in mind:

First, make the inventory as complete as it is reasonably possible to make it.

Second, secure and record descriptions and other information in sufficient detail to permit of a price being applied to each item.

Third, collect and record sufficient data to insure a fair estimate of the depreciation of each item.

Referring to the first statement, it is seldom that an inventory is made without the omission of important items, often of considerable value. If a telephone line is constructed in a street or on a highway it is often necessary to trim trees, to obtain a permit therefor, and sometimes to obtain a permit even to construct the line adjacent to certain property. If a trench for a conduit is being dug it is often necessary to shore up buildings, or to rearrange water or gas pipes.

All such items cost money, and should be given consideration. Even differences in soil conditions which affect the cost of placing poles, should be noted. In fact, anything that might have a bearing, directly or indirectly, on the cost of construction, should be made part of the record in order that all conditions that might influence the valuation may receive due consideration.

Pricing.

The next step is the placing of unit prices on each item in the inventory. The word "price," as here used, includes freight, haulage and storage costs on materials, and liability insurance on labor. During the collection of the data for making the inventory, the necessary information must have been obtained in order that prices may be applied intelligently. It is our aim to place upon each unit a price which will represent the fair cost of labor and material to install the unit in place for operation.

In determining these prices many things must receive consideration. Market prices on various materials fluctuate so much that it is desirable to obtain a figure which represents the normal price. For material, such as copper or iron wire, a normal price may usually be obtained by averaging prices for a period of years.

This method may not be applicable to other items, some of which may have a tendency either to rise or to fall consistently. It is, in any case, necessary to try to determine the trend of prices and use a figure which will represent a fair average, after taking into account all available information which might influence prices either up or down. Actual cost is excellent as a price, if conditions have not changed since such cost was incurred.

Prices should be applied in detail to each unit of the property. When thus applied, extended and summarized, the result will represent a fair amount to allow for cost of reproduction of the property new. To this must be added certain overhead costs, which will be discussed later.

Depreciation.

The cost new less depreciation of the physical property, is obtained by deducting from the cost new of each unit an amount equal to the estimated loss in value of the unit due to wear and tear, weathering, inadequacy or obsolescence.

We all know that no piece of construction lasts forever. Poles may have a life ranging from six years or less, to 20 years or more, depending on the kind of wood, climate, weather conditions, soil, method of setting, maintenance, etc. Under known conditions the average life can be estimated quite accurately, but inspection should be made of the actual condition of a large number of the poles to determine whether or not this estimated life is correct for the particular property under consideration. Wire and other items should receive similar treatment.

Switchboards are not subject to depreciation of the same type as are the poles, but because of inadequacy or for other causes, even switchboards have to be removed or replaced in time. So on with each item.

A life which will be fair under existing conditions should be applied, and with the age known or estimated, it is possible to assign a figure which will represent either the present value or the depreciation, as a percentage of the cost new.

These figures should be set down in columns parallel to the figures representing the cost new. When totaled by groups they represent the cost of reproduction less depreciation of the various items of property.

Overhead Charges.

As has been stated, the figures applied to the various items, represent simply labor and material costs (including freight, haulage, etc.) of placing the units in position. There are many items of cost which it is difficult to assign or apportion to each unit of the property.

Items such as general organization expenses during the construction period, legal expenses, engineering and general supervision, interest on money invested before operation begins, taxes during construction, etc.—those which we consider a part of the actual cost of construction—are usually applied as an overhead to the entire property or to individual groups separately. They are sometimes calculated as a percentage of the specific cost of construction and sometimes estimated as a lump sum and applied. But, however these overhead costs are applied, a study should be made of the fair amount to allow for the particular property under consideration.

In making an inventory it is quite impossible to succeed in listing 100 per cent. of the property, and it has been customary to allow a small percentage of the total for omis-

sions, the amount varying with the care with which the inventory is prepared. It should be the aim, however, to list every item possible as a part of the inventory upon which prices may be applied, and thus keep at a minimum the amounts to be applied as overhead costs.

Other Costs.

In estimating the value of the physical property the cost of labor and material, properly treated, is considered as the specific cost of construction. To this are added the costs for overhead just enumerated. When dealing with the physical property only, it is usually considered that no other items of cost will be applied, since the estimate is intended to include every item of cost of the physical property. There are often other expenses, however, between the inception of the project and the time the property becomes a self-sustaining or paying concern, that the utility must bear.

These may be generally listed as follows: Cost of preliminary investigations; organization of the utility; raising capital; commissions on sales of securities; discount on bonds; cost of obtaining business, etc. These matters are not generally handled by the engineering department, as they are not necessarily a part of the actual cost of the physical property. For that reason they are not dwelt upon in this discussion.

The purpose of this paper has been to state briefly, for the benefit of those who have not yet had experience in this line, some of the primary considerations that should receive attention in making a valuation. This is done with a view of encouraging each company to perfect its methods of keeping records in order that a valuation may be made readily and economically, in case of necessity arising therefor.

Extension of Brazil Telephone Systems.

Much has been said during the past few years concerning the extension of Brazilian telephone systems. There are at present in the federal district and immediate vicinity 12,000 telephones in service in Rio de Janeiro, 1,200 in Nictheroy (the capital of the state of Rio de Janeiro, situated across the bay from the federal capital), 750 in Petropolis (the summer resort of Rio de Janeiro), 100 at Barra do Pirahy (at the junction of the branch railway lines from the federal capital to the states of Minas Geraes and São Paulo), 23 at Barra Mansa, and 19 at Rezende. A station was recently completed at Mendes and one has been established at Campos, state of Rio de Janeiro, with a few subscribers.

With the exception of the last-named station, those mentioned are under the control of the Brazilianische Elektricitäts Gesellschaft in Rio de Janeiro, and the suburban cities under the management of the Interurban Telephone Co. of Brazil, both part of the Rio de Janeiro Tramway, Light & Power Co., Ltd., with headquarters in Rio de Janeiro. It is estimated that in this section of Brazil there is one telephone for each 100 inhabitants. Much of the wiring of the system is underground.

In the state of São Paulo and the southern part of the state of Minas Geraes, the telephone systems are operated by the Companhia Telephonica do Estado de São Paulo, with headquarters at São Paulo, Santos and Campos, which is also a branch of the Rio de Janeiro Tramway, Light & Power Co., Ltd., and the Companhia Rôde Telephonica Bragantina. The first-named company has about 8,000 subscribers in the three cities just mentioned and a number of rural lines. There are also connections with the lines of the second-named company, which has its headquarters at São Paulo city, the capital of the state of the same name. The Companhia Bragantina connects, by its lines, 171 cities and towns in the states of Minas Geraes and São Paulo, serving 4,500 subscribers. Besides these two companies there are numerous smaller local companies in many cities and towns of those two states, still further completing the facilities of connections.

Conversations may be carried on over the telephone from the city of São Paulo to Riberao Preto, in the same state, a distance of 339 kilometers (211 miles), or between Riberao Preto and Santos, 419 kilometers (206 miles), or with Guaratingueta, a distance of 550 kilometers (342 miles). There is also a telephone system at Juiz de Fora, state of Minas Geraes, operating under the Companhia Mineria de Electricidade of that city.

Connection may be obtained from São Paulo to Guaratingueta and from Rio de Janeiro to Barra de Pirahy; and the intervening unconnected distance to complete the telephone communication between the cities of Rio de Janeiro and São Paulo is but 165 kilometers (103 miles). Although formerly there apparently existed some difficulty in obtaining permission of the government of São Paulo to cross the state border, this seems to have been arranged, and probably the only reason that the line has not been completed has been the lack of capital. It seems certain that it is only a question of a very short time until the work will be under way; and it is claimed that it will form a system, whose various sections are operated under separate companies, that will connect as many as 50,000 instruments.

Results of Central Home "I Told You So" Club.

The "I Told You So" club of managers of the Central Home Telephone & Telegraph Co., of Louisville, Ky., has made its mark again in connection with the efficient collections campaign. The detailed reports are not available as yet, but it is certain that the average for the system as a whole for the first half of the calendar year is a good, fat 100 per cent. In fact, every exchange except one in the whole system reported 100 per cent. collections, and that one fell only a fraction of 1 per cent. short, the discrepancy being overbalanced by the others.

According to W. M. Brown, general auditor for the company, the first place is nip and tuck between the eastern and the central division, although he made the statement that the western Kentucky managers, where the lone minus was recorded, accomplished wonders against odds, which included unfavorable local conditions as well as vigorous competition. Two exchanges in the central division, four in the western and six in the eastern finished the half year ended June 30 with not a dollar outstanding on the books. In addition to good collections, increases in business have been reported in all divisions, those in some of the western divisions being especially worth noting.

Earnings of New England T. & T. Co. for April.

During April the gross earnings of the New England Telephone & Telegraph Co., of Boston, Mass., amounted to $1,726,071, compared with $1,536,383 in the corresponding period a year ago. The operating income was $439,700, compared with $373,955 in April, 1915. For the four months ended April 30, the gross earnings were $6,675,017, compared with $5,929,885, the like period last year, and the operating income amounted to $1,617,390, compared with $1,336,594 for the four months ended April 30, 1915.

Report of Pacific Company for April.

The operating income of the Pacific Telephone & Telegraph Co., of San Francisco, Cal., for April, increased 1 per cent. over April, 1915. For the four months ended April, 30, 1916, the decrease was 1 per cent. from the corresponding period of 1915. The number of stations on April 30, 1916, was 532,413, an increase of 4 per cent. over April of the preceding year.

"Telephony's" Home Study Course for Telephone Men

A Complete Presentation of the Principles Underlying Modern Telephony in All Its Branches—Arranged Systematically So That Regular Reading and Faithful Study Will Qualify Ambitious Men for Higher Positions—Prepared Under Supervision of Stanley R. Edwards—This Section Written by Jay G. Mitchell

Quiz Questions on the Preceding Installment.

419. How can omissions and oversights in circuit analysis be minimized?

420. Why is it necessary to consider carefully the detail wiring as well as the schematic circuit?

421. What classes cover the standard cord and line circuits?

422. Why must the associated line and cord circuits always be considered together?

423. What effect does the internal circuit in the cord equipment for the supervisory lamp, have on the cut-off relay resistance?

424. What effect on the busy test?

CHAPTER XIX. Typical Cord and Line Circuit Combinations (Continued).

425. *The different relay circuit combination.*—When discussing the operation of the double-wound battery-feed supervisory relays, attention was directed to the necessity of carefully scrutinizing the direction of current flow around the core of all double-wound relays. While some of this general type of relays are intended to operate when current is sent through both of their windings, others are not intended to be operated under the same conditions. In other words, this type of relay is sometimes so connected that the flow of an equal strength of current through each of the two similar windings, will produce no magnetic flux in the core.

This object is accomplished by causing one of the two windings to oppose the magnetic effect of the other. When the equality of the current strength in the two windings is disturbed, however, the effect of one in magnetizing the core is then more powerful than the opposing effect of the other and magnetic flux is produced in the core operating the relay.

This arrangement is the one which gives its name to the circuit combination shown in Fig. 150. When the circuit is completed between the two sides of the telephone line by the removal of the calling receiver from the hook, a flow of current will take place through the winding of the relay, *A*, the lower winding of the double-wound relay, *B*, the relay contact point 4, the line wire, *L*, returning over the line wire, *K*, the junctions, 8 and 9, the upper winding of the double-wound relay, *B*, and thence to the grounded terminal of the common battery.

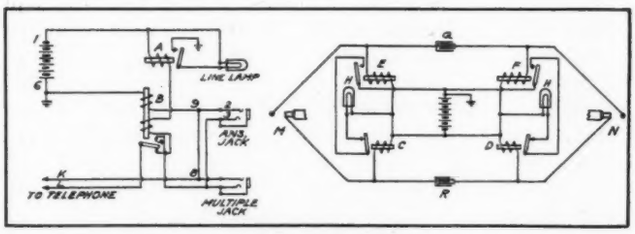


Fig. 150. Differential Relay Line Circuit.

This flow of current through the winding of the relay, *A*, causes operation of its armature, completing the circuit for operating current in the line lamp and displaying a signal for the operator. Imagine an observer looking at the lower end of the core of the relay, *B*. It will then be observed that the current in the lower winding is flowing around the core in the opposite direction to that taken around the core by the current in the upper winding. Since these two windings have exactly the same effective turns, and since the current flowing through both is the outgoing and incoming flow of the *same current*, the magnetizing force in the two windings is equal and *opposed*. Therefore there is no magnetic flux created in the core, the armature is not attracted by it and the relay is not operated.

It should be noted that the line circuit from either the answering or the multiple jack to the telephone is open at contact point, 4, until such time as conditions are created which will cause the operation of the relay, *B*.

426. *Circuit resistance with differential relay.*—The operation of the line and cord combination in which the differential relay is used, is made very clear by assuming an average set of line conditions and carefully tracing the progress of a call received under the conditions assumed.

The resistance of the telephone circuit over which a call is to be received, may be placed at 350 ohms including the line wire and the telephone instrument. The relay, *A*, may be assigned a resistance of 400 ohms; the front winding of the differential relay, 190 ohms; and the rear winding, 235 ohms. In Fig. 150 the upper winding of the differential relay, *B*, is in reality the front winding, being shown as it is in order to avoid crossing the wires and unnecessarily complicating the circuit drawing.

If it be assumed that the common battery voltage is 40, the strength of current flow through the line relay, *A*, the two windings of the relay, *B*, and the telephone line when a call is being received at the central office over a telephone circuit having a total resistance of 350 ohms, is equal to 40 divided by 400 plus 235 plus 350 plus 190 or 40/1,175 (0.034) ampere.

427. *Difference in resistance of windings of differential relay.*—It is worthy of note that the difference in the resistance of the two windings of the relay, *B*, is due to the fact that a greater number of turns is needed in the rear winding of the relay than in the front one to produce an equality in the

magnetizing forces of the two windings. It will be remembered that the rear winding of all double-wound relays is certain to suffer from a greater leakage of the magnetic lines of force created by its ampere turns than the winding located at the end of the core nearest the armature. See sections

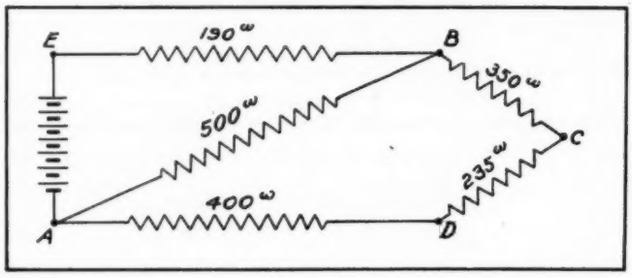


Fig. 151. Resistance Conditions of Answered Call Differential Relay Circuit.

283-287, TELEPHONY's Home Study Course for Telephone Men, TELEPHONY, January 15, 1916.

In order, therefore, to insure the desired result, when it is essential to secure a perfectly balanced magnetic effect between two windings located at the opposite ends of one core, the rear one is given a greater number of turns than the front.

Under the conditions assumed it may be said that there will be no magnetic flux created in the iron core of the relay when a current of 0.034 ampere is flowing in its two windings in opposite directions around the core. This is the condition when the line signal is being displayed before the operator and before the answering plug is inserted in the jack.

428. *Circuit completed by insertion of answering plug.*—The effect of inserting the answering plug into the answering jack may now be analyzed as follows:

The relay, *E*, with its connecting wiring, may be assumed to have a resistance of 500 ohms. Upon inserting the plug, *M*, into the answering jack, the tip of the plug and the tip spring of the jack complete a circuit from the non-grounded terminal of the common battery, through the winding of relay *E*, the tip of the cord, plug, and jack, through the upper winding of the relay, *B*, to the grounded terminal of the common battery. This circuit is completed through the front winding, measuring 190 ohms, of the differential relay.

429. *Strength of current flow in front winding of differential relay.*—In order to thoroughly understand the effect resulting from the insertion of the answering plug in the answering jack, it is best to calculate the strength of the current flow in the front winding of the differential relay at that time and to compare it with the strength of the current flow in the rear winding. In Fig. 151 are shown, in simplified form, the conditions and relative arrangement of resistances at this time so far as they affect the strength of the current flowing in the various elements of the circuit. In this sketch, the resistance marked 190 ohms represents the front winding of the differential relay; that marked 350 ohms is the resistance of the telephone line and instrument; the one marked 235 ohms is the rear winding of the differential relay; and the one marked 400 ohms is the winding of the line relay, *A*.

It has just been shown (section 426) that the strength of the current flow in the two windings of the differential relay, when a call is being received under average conditions, is 0.034 ampere. This current is also compelled, by the arrangement of the circuit, to flow through the line relay, *A*. It is also true that the magnetizing force of the two windings of the differential relay, *B*, is equal and, since the magnetizing force of each is opposed to that of the other, no attraction exists between the core of the relay and its armature.

430. *Increase in current flow due to changed circuit conditions.*—When the answering plug is inserted into the answering jack, a new set of circuit conditions is created. The flow of current through the front winding of the differential relay, *B*, is instantly increased without a corresponding increase in the strength of current flow in the rear winding. The insertion of the plug completes a circuit from the non-grounded terminal of the common battery, through the relay, *E*, the tip of the cord, plug, and jack and the front or 190-ohm winding of the differential relay, to the grounded terminal of the battery.

Current has been flowing in this winding of the differential relay in this same direction, since the circuit between the two sides of the telephone line circuit was completed by the removal of the calling receiver from the telephone hook. The additional current, due to the insertion of the answering plug, *M*, into the answering jack, will therefore unbalance the condition of magnetic equilibrium in the effects of the two windings.

The resistance between the points, *A* and *B*, is equal to the joint resistance of 500 ohms and 985 ohms (350 plus 235 plus 400) in parallel. But the resistance of 500 ohms and 985 ohms in parallel is equal to their product divided by their sum or 331.6 ohms. Worked out, this gives a value for the joint resistance of the *combination* of 331.6 ohms.

Since the joint resistance between the points, *A* and *B*, is 331.6 ohms, the *total* resistance in the battery circuit is equal to 331.6 plus 190 or 521.6 ohms. The current, therefore, flowing through the front coil of the differential relay at the instant that the plug makes contact between its tip and that of the jack, is equal to 40 divided by 521.6 or 0.077 ampere. But it has been shown that under the assumed line conditions, the current through both the windings of the differential relay before the plug is inserted, is only 0.034 ampere.

431. *Results from insertion of answering plug.*—The insertion of the answering plug, therefore, increases the strength of this current in the front winding by 0.077 ampere, almost double its previous strength. It does *not* increase *in any way* the current flowing through the rear winding. Hence the magnetic equality of the effect of the two windings is destroyed by an increase in the strength of the current flowing in one winding without a corresponding increase in the strength of the current flowing in the other.

The *excess* magnetizing force created in the front winding in this way, produces magnetic lines of force in the core, the armature of the relay is operated, and the circuit through the *rear* winding is at once *broken* at the contact point 4.

When the differential relay, *B*, is operated, it ceases to be a differential relay in effect, as the circuit through its rear winding is broken and the flow of current through it is interrupted. The line relay, *A*, is deprived of its operating current at the

same time and resumes its normal condition, extinguishing the line lamp. The supply of battery current to the calling telephone is drawn from the sleeve side of the cord circuit and the front winding of the differential relay. The supervisory relay, *C*, is energized and operated by the current flowing out over the line to the calling telephone and remains energized as long as the calling receiver is retained off its hook.

(To be Continued.)

Telephone Inspection in Massachusetts.

It has been the practice of a number of public service commissions of recognized high standing to establish arbitrary rules and regulations under which the telephone companies shall furnish service, such as prescribing an average time for answering signals; the percentage of answers that shall be made within a certain period; average time for disconnections; percentage of disconnections within a certain time; percentage of calls without operators' errors; and other similar service requirements including transmission standards, etc.

Up to the present time, the Massachusetts Public Service Commission has not considered such a program. The board's supervision of service is conducted by the telephone and telegraph department, to which is attached an inspection force of practical men of long service in traffic and plant problems. These inspectors are required to investigate all complaints of whatever character and, when time will permit, to visit various exchanges with a view to observing conditions as to operating and plant forces.

These studies include the distribution of operating forces during load and other periods, percentage of insurance to the business community in the matter of reserve force, etc., and the various items that enter into the handling of a telephone call; methods of the plant forces in handling troubles of various kinds, and the number of inside and outside workers as compared with the number of subscribers.

Other matters considered are the percentage of line and mechanical troubles, as shown by the company's records; observation of certain lines under complaint for excessive use; traffic shortcomings, transmission problems, etc., and making reports of conditions as observed, with necessary recommendations to adjust certain items of traffic, plant and commercial methods to a reasonable standard.

These recommendations are considered by the chief of the department in conference with the vice-president of the larger telephone company (the New England) or his assistants, and with various officials of the other companies. So far, it appears that this policy is working to the advantage of both the companies and the public without creating a disturbing influence upon the telephone employes, particularly the operators at the switchboard, by the feeling on their part that their every move is subject to the scrutiny of "outsiders."

In this connection, the chief of the department frequently addresses gatherings of telephone company employes, outlining the attitude of the commission and the work of the department. This appears to have created an atmosphere of confidence on the part of the employes toward the commission, as against the early suspicion that the efforts of the latter would be inimical to the interests of the employes, which it is assumed has been a general condition throughout the country.

As has been stated briefly before in TELEPHONY, the commission encourages the filing of complaint by telephone or other informal methods, with the result that a very large part of the department's work is conducted with a view toward remedying faults at once and fixing responsibility later.

Output of Treated Timber.

According to statistics just compiled jointly by the American Wood Preservers' Association and the United States Forest Service at Washington, D. C., there was treated at 102 plants in the year 1915, a total of 141,858,963 cubic feet of timber, which compares with 159,582,639 cubic feet by 94 plants in 1914; a decrease in quantity of about 11 per cent. in 1915. Of the 1915 output, cross ties contributed 78.4 per cent. of the total, construction timbers, 8.3 per cent., paving blocks, 5.4 per cent., piling, 4.4 per cent., poles, 1.7 per cent., and the balance consisted of cross arms, lumber, etc.

With the exception of the two years 1913 and 1914, the volume of timber treated in 1915 was the largest on record. The linear feet of poles treated in 1915 showed an increase of 69.5 per cent. over 1914, while the number of cross arms treated decreased 78.3 per cent.

To treat the 141,858,963 cubic feet of timber shown for 1915 required 80,859,442 gallons of creosote, 33,269,604 pounds of zinc chloride and 4,899,107 gallons of all other preservatives, which included crude oil, coke-oven tar, refined coal-tar, carbolineum oils, etc.

Of the creosote used in 1915, 54 per cent., or 43,358,435 gallons (41,333,890 gallons coal-tar creosote and 2,024,545 gallons water-gas-tar) was domestic, and 46 per cent., or 37,501,007 gallons, German and English oil. In 1914 the larger consumption of creosote was met by imports, the falling off in 1915 being explained by the scarcity of foreign supplies due to the European war. The imports of creosote into the United States in 1915 (37,501,007 gallons) were 13,806,729 gallons, or nearly 27 per cent. less than the previous year.

It is a noteworthy fact that the wood-preserving industry in this country is expanding at a healthy rate. Ten years ago there were only 39 plants in operation; today the number is over 100. The increase in output in the interval between 1906 and 1915 has been remarkable, indicating that the large consumers of wood, especially the railroads and municipalities, are realizing that treated timber for cross ties, paving blocks, etc., has peculiar advantages which make it more economical in service than its competitors in the long run.

Telephone a Necessity in "Movie" Theater Box Office.

The telephone was given a real boost in a recent issue of the Moving Picture World, of New York, when that publication carried, under a Louisville, Ky., date line, the statement from a moving picture exhibitor of Louisville to the effect that a box office telephone was a necessity. "It is needed," he concluded, "merely as a business getting proposition and a matter of service to patrons." He added that he could not see how any theater management could be so penny wise and pound foolish as not to have at least one telephone installed or both, if the city happened to have two systems.

In Louisville one of the outskirt theaters features telephone service and in its advertising requests its patrons to call up and get information of plays and players. The girl in the box office answers the calls, gives the number of reels in the photoplay feature, the producing company and the stars who are represented. One of the larger downtown houses has both telephones and the statement was made that they more than pay for themselves through the volume of calls received to find out what program is offered, or what time certain shows will start. One other exhibitor figures that if he no more than breaks even on the cost basis he is bound to come out ahead.

Southern Bell Shows Decrease in Earnings.

The operating income of the Southern Bell Telephone & Telegraph Co., of Atlanta, Ga., for April shows a decrease of 4 per cent. over April, 1915, and for the four months ended April 30, 1916, the decrease was 6 per cent. from the corresponding period of 1915. The number of stations on April 30, 1916, was 179,741, an increase of 7 per cent. over April of the year preceding.

The Huntsville & Lake of Bays Telephone Co., Ltd.

Brief History of the Organization and Development of the Huntsville & Lake of Bays Company Which Operates Between Huntsville and Lake of Bays Under an Ontario (Canada) Charter as a Limited Company

By Percival Walmsley, a Shareholder

As its name implies, the line operated by the Huntsville & Lake of Bays Telephone Co., Ltd., runs out from Huntsville to the Lake of Bays, mostly following the winding course of a road, and branching out so as to touch the lake at various points. It serves farmers along the road, and includes tourist houses on the lake. A folder of the Grand Trunk Railway entitled "Lake of Bays," gives full description of this part of Muskoka, the highlands of Ontario.

The president is C. J. C. Crump, of Ronville, Lake of Bays, and the company practically owes its existence to his initiative. The line was only completed in the summer of 1915, and the October (1915) directory of the Bell Telephone Co. of Canada —for Northern Ontario—contains its first public recognition.

The company operates under an Ontario charter, as a limited company. The capital stock is placed at $4,000, divided into 400 shares at $10 each. Practically the whole of this has been subscribed. The company connects with the Bell company at Huntsville on a flat rate basis of $2 per year per telephone. Thus the subscribers of the Huntsville & Lake of Bays company have free connection with all the Bell subscribers at Huntsville, and with some other lines connecting there, vice versa.

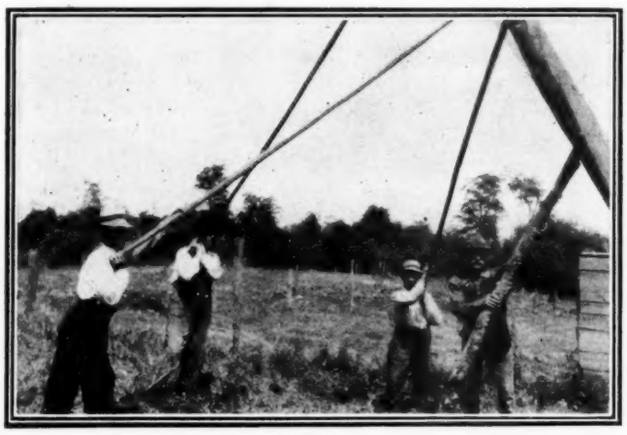
First class construction was used in building the line and as a result the service has been excellent, conversation between Huntsville and the farthest points of our line being very clear The construction problems presented no special features, beyond the fact that the road was very winding, and along part we had to share it with the lines of the Great North Western Telegraph Co., and the Huntsville & Portage Telephone Co., Ltd. That necessitated some 30-foot poles to clear the other lines in places.

The ground varied, comprising clay, rock, hard-pan and sandy loam. The country is mostly hilly, and partly open clearings, and partly bush-beach, maple and hemlock. The line is wholly metallic circuit. The cedar poles were supplied locally, mostly by the shareholders. They were allowed $1 per pole, delivered

Wire Broken by Falling Tree Alongside of Road.

along the route, length, 25 feet, and diameter at top, six inches. Thirty-foot poles were $1.20 each. A good many men paid for their shares in poles. Some of the territory is served by side-block lines, while to carry these from where they join, to our central at Dwight, we use six-pin cross arms. Trunk lines are used for the 13 miles from Dwight into Huntsville.

We avoided the bush as much as possible, owing to the danger of trees falling on the line, but where we had to pass through it, we attached the sideblocks to the trees. We had to incur some expense on repairs, owing to fallen trees, as we anticipated, but we found we also had trouble because the swaying of the trees made the wire cut at the insulators. It would have been



Setting a Pole Near Huntsville, Ontario.

better to put the wires on poles, even through bush country.

We have six circuits. Each is on a party-line basis, but to get on another circuit or through to Huntsville, central must be rung up. Our subscribers number 45, all on a three-year contract, at $15 per year, payable half-yearly in advance. The summer tourist, or rather cottager, is charged the same rate.

We have a small multiple switchboard, for ten circuits, costing about $117, which is installed at Dwight, in the house of a resident there. His wife is the responsible operator, but he acts as "relief." The operator is paid $1 a day for her work.

We have to cut our coat according to our cloth, and walk before we can run, and therefore cannot, at present, give a day-and-night and all-day Sunday service free. The central hours are from 7 a. m. to 9 p. m. week days, and between 8 and 9 a. m. and 5 and 6 p. m. on Sundays. But if necessity compels, by paying a quarter, central may be called at any hour. The same rule applies to subscriber and non-subscriber alike. If the subscriber is calling the doctor, however, there is no charge. Instead of the buzzer for day-time use, at night there is an extension bell, warranted to wake up any operator from the land of dreams.

Our balance sheet, dated December 31, 1915, which satisfied our shareholders, might interest those who consider the financial aspect. The line had then only been in full operation for about six months. The balance sheet follows:

ASSETS.

Debts owing to the company	$ 29
Stock in trade	253
Plant	4,332
Franchise	500
	$5,114

LIABILITIES.

Debts owing by company, not secured	$ 433
Debts owing by company, secured	1,000
Surplus	3,681
	$5,114

The statement of receipts and expenditures for the six months' period ended December 31, 1915, follows:

RECEIPTS.

Share account, cash	$2,750
Share account, poles	1,030
Telephone rents	595
Tolls	37
Loans	1,000
	$5,412

EXPENDITURES.

To construction, wages, material, etc	$5,283
Balance in bank	129
	$5,412

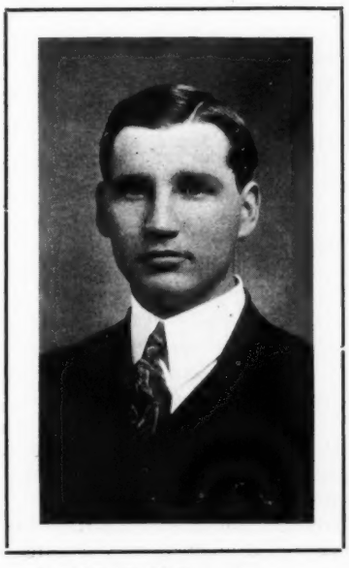
Economy has been the desire of the company. The directors passed a self-denying ordinance, and made a present to the company of all their time, trouble and expense in attending many meetings. Also for their work of 1915 they are content to "bide a wee" for their remuneration. The cross arms were made in the district. The labor was local, supervised by the manager-director, who worked with the men. The directorate has been reduced from seven to five. Permission to obtain more capital is being applied for. Our capitalization was rather too small from the start, and there are calls for extension of the line.

Use of the Telephone in the U. S. Reclamation Service.

Direct telephone connections with all parts of irrigation systems, according to the Journal of Electricity, Power and Gas, is coming to be recognized as a necessity. This is essential both for routine distribution of water on large systems and also for emergency us in time of accident to the canal. On the projects of the United States Reclamation Service over 2,500 miles of telephone lines are in use. The average cost of this, including telephones, has been $160 per mile. On the different projects the acres served per mile of telephone varies from 300 to 1,500, being smallest on those systems having long diversion canals, and largest for the more compact projects. The average for the operating projects is one mile of telephone line to about 700 acres.

Personal Items of Interest to the Operating Field

W. K. McQUOWN, engineer and general superintendent for the Associated Telephone Companies of North Texas, with headquarters in Sherman, Texas, was born in Winchester, Ill., May 30, 1883. He made his first venture in the telephone business as night operator in Roodhouse during vacations before finishing high school. After graduating from the Roodhouse high school, he filled the position of night operator and troubleman for several months, when he resigned to take a position as inside electrician in St. Louis. He later went to Peoria, Ill., where he filled a similar position.



W. K. McQuown.

A short time afterwards he became connected with the Citizens Telephone Co., of Havana, Ill., as troubleman. He was promoted from this position to wire chief and later transferred to Delavan, Ill., as manager. A short time afterward he was again promoted, returning to Havana as manager.

In 1909 Mr. McQuown went to Kansas as superintendent in charge of the Atchison Home Telephone Co., at Atchison, a part of the Gary System. Just prior to the consolidation at Atchison with the Missouri & Kansas Telephone Co., he was made superintendent of plant of the Home Telephone Co., of Joplin, Mo. From Joplin he went to Nevada, Mo., as manager of the Home Telephone Co. there.

In the fall of 1912 Mr. McQuown came to McKinney, Texas, as general manager of the Union Telephone Co. then in progress of construction. The Union company now owns and operates exchanges in McKinney, Plano, Howe and Celina, and about 1,500 miles of toll lines.

About a year later the general management of the North Texas Telephone Co., the Bonham Telephone Co., the Grayson Telephone Co., the Peoples Home Telephone Co., and the Union Telephone Co., was centralized in general offices at Sherman, Texas, and Mr. McQuown was made engineer and general superintendent, the position which he now holds.

Mr. McQuown held the office of treasurer of the Texas Independent Telephone Association for several consecutive years.

H. T. WILLIAMSON has resigned his position as manager of the Home Telephone Co., of Champaign, Ill.

H. C. MARBLE has been appointed manager of the Home Telephone Co., of Champaign, Ill., to succeed H. T. Williamson, resigned.

EDWARD OSTRANDER, examiner of the Oregon Public Service Commission, has been appointed secretary of the commission to succeed H. H. Corey.

G. C. FORTNEY recently resigned his position as manager of the New Paris Home Telephone Co., of New Paris, Ohio, to engage in electrical contract work.

C. E. COX, manager of the Eaton (Ohio) Telephone Co., has also taken over the management of the New Paris Home Telephone Co., of New Paris, Ohio.

A. GOEHRING, manager of the Lewistown, Ill., exchange of the Central Union Telephone Co., has resigned his position, and after a month's vacation will open up an insurance office in Seattle, Wash.

L. M. LORING, division traffic superintendent of the Southwestern Telegraph & Telephone Co. in Arkansas, has been made general traffic superintendent for the state of Arkansas, with headquarters at Little Rock.

I. E. SPRANKLE, manager of the Bell Telephone Co. of Pennsylvania, at Lancaster, Pa., has been transferred to Youngstown, Ohio, where he will have charge of a much larger exchange and consequently have added responsibilities.

H. H. COREY has been appointed a member of the Oregon Public Service Commission to fill the vacancy caused by the resignation of C. B. Aitchison, who has become solicitor for the National Association of Railway Commissioners at Washington. Mr. Corey, for a number of years, has been secretary of the Oregon commission and is well acquainted with its work.

OBITUARY.

CHARLES A. CASPERKE, manager of the Cumberland Telephone & Telegraph Co. at Jeffersonville, Ind., died recently of blood poisoning, at the age of 46 years.

Practical Subjects—Letters and Discussions

Use of Condensers on Grounded Systems.

Referring to article in TELEPHONY of June 10, page 32, regarding the use of condensers on grounded systems, we have tried out this plan and find that it works all right if the condensers are wired in the right place. But the diagram has it wrong. The condenser should be wired in the ringing circuit only, which will show a clear line on the voltmeter. You must have condensers in your receiver circuit, also, for fear of someone having their receiver down, but nearly all well put up lines have a ½ or ⅓ condenser in the receiver circuit anyway to help in the ringing.

If the condenser is put in the ground wire as in the diagram published, you cannot ring very strong, but if you put it in the ringing circuit only, your bells will ring better than without them.

Richland, Mo. E. E. Moe.

"Telephony's" Home Course for Telephone Men.

(Not meant for study.)

By Well Clay.

There's a valley, silver-threaded
By a clear, cool, winding stream,
Where I wandered in my boyhood;
Which now seems but a dream.

How the sunlight used to glisten
Where the riffles used to flow
O'er their rough and stony pathway
To the quiet pool below.

From its silent depths reflected
We could see the clouds on high,
As like dreamy sheep they drifted,
'Crost the meadows of the sky.

By a rock, so big and mossy,
A clear spring bubbled up,
Where we drank the sparkling vintage
From Nature's loving cup.

And the pathway through the bushes,
Along the shady shore,
Worn by the feet of happy children,
Who will never tread them more.

But the waters in the river
Have run their course to the sea,
And the days of happy childhood
Have drifted far from me.

Verily these be the days of changes and the old days are passing away. History is getting so swift in its scene shifting that it resembles a picture show. We have lived through more vital changes in the last few years than our predecessors did in many generations. Problems which loomed large in our eyes a short time ago, have dimmed and are disappearing like the shown slides on the white curtain.

In the old days—ages ago it seems, when we were boys—things did not happen in such rapid sequence; nor were the changes so momentous and exciting as to cause father to forget about giving us the "whaling," promised in case we neglected to remain in close proximity to the potato patch. That was where we were not only expected, but actually urged to devote the passing hours in an earnest endeavor to aid and abet the vines in their laudable endeavor to flourish, and to do all that was possible to discourage the thrifty weed. Never will we forget the disheartening length of the rows, nor their altogether unnecessary number.

How short was the path down through the willows to the bend of the river, where the current had thrown up a shining sand bar and otherwise set the stage handy for poor down-trodden boys to enjoy the fleeting hours of youth. But the days were long and the lickings, though sure and severe, were short. This explains, perhaps, why we sometimes, even to this day, see in remote places weeds which have escaped extermination through a thousand generations of small boys, else they would not be here.

We spent a good deal of anxious thought on how to "get away with it," as the saying goes. Sometimes we were rewarded for awhile with an absence of dire results. But surely came the fatal day, when we had grown a little careless from immunity and father's appraising eye noted the neglected look about the "patch." It resulted in our making numerous and vigorous promises regarding our contemplated conduct for the immediate future relative to that piece of ground. I have sometimes wondered, if weeds could understand the language of humans, if they ever felt apprehensive regarding the outcome of our expressed plans.

Sometimes a corporation, after a long immunity from any decisive regulating, during which time it has grown more bold, ruthless and grasping, detects finally the coming of an investigation, which it must necessarily think will result disastrously for it, and will endeavor to suspend or ward off punishment by similar acts. However, the days of corporal punishment in numerous and excessive doses seem to have gone by. Nowadays we are not the firm believers that to "spare the rod will spoil the child," our parents seemed to be obsessed with. We are more willing to take the word of such corporations at their face value, keeping mental reservations in the background as much as possible, and give them a chance to cultivate the garden as it should be done.

I remember, in the dear old days of telephone operating, how we used to run across cases like the following:

One day I was passing through a neighboring town some 50 miles from home, and as it is customary in the free masonry of any trade to call on co-workers in the same line of business, I visited the telephone office. The operating room was empty, the whole force evidently having been called away suddenly. Several drops were down on the board and one or two came down while I was in the room. I noticed, however, that there was no impatient clattering of the drop, once it had fallen, which would seem to indicate that whoever had called, had not rung a second time.

Soon a door opened in the rear of the room and the operator appeared. Without hurry she proceeded, after ascertaining that I wanted only to see the manager, as a matter of courtesy, to call up one after another, the subscribers whose drops were down and, without in any manner apologizing for her delay ask what number they wished to be connected with. She had been absent an hour or more, having gone home to breakfast, for she was the whole operating force—running the board and doing the collecting for so much a month.

It appeared that it was the custom for subscribers to go to the telephone and ring up without taking the receiver off the hook or seeming to expect an immediate serving. When the operator was ready to give the connections, she would ring back and everyone was satisfied.

Yesterday I saw the new automatic installation that the Tri-State Telephone & Telegraph Co. recently cut over in St. Paul. It is about as far a jump forward in the giving of service over the incident I have just noted, as the days of the present are over those when "boiling soap" in the spring and "hog-killing time" in the fall were

the chief events happening during the year, which were of an exciting nature.

The Tri-State company appears to have "struck twelve" this time in its efforts to please an exacting telephone public. It is said that cases of trouble occurring in the operation of the new plant are so few and far between that were it not that the directing geniuses who embellish the managerial offices with their handsome presence are such good fellows, most of them would surely lose their jobs.

If you want to see how far you have got away from your kid days just go back to the "scenes of your boyhood" this summer when you take your vacation—in case you have moved away from them. Go and try to sit in the seat you occupied the first day at school. Visit the "old swimming hole" and shudder at the horrible chances the kids are taking of catching cold and getting drowned by doing just the stunts you were proficient in when you were young.

The old town may look shabby to you and the vast edifices of your youth, like the city hall and the opera house, will have shrunk considerably. The old homestead will throw a tinge of sadness into your musings as you stand in the now fore-shortened front yard and view the effect which the ever-changing hand of time has wrought.

One day in and about the old place will sadden and satisfy you, but you will be glad you came as well as glad you are leaving. You will then fully realize how impossible it would be for you to fit in again to the scheme of things that were, and your mind will be at rest regarding the wisdom of the Creator in making change the one most constant force in the world.

APHORISM: Clocks are not made to run backward.

The Third Degree.

Is there no way in which government employes, especially clerks and petty officials, can absorb some small part of the business man's ethics? Just ordinary honesty and fairness, even if it is beneath their dignity to be courteous.

How many telephone companies have been subjected to the international revenue department's "third degree?"

A friend of ours, whose chief business is farming, and who is in the telephone business as a side line, had occasion to send his first "war tax" remittance of 25 cents. He filed in the blank and sent it to the collector. It came back, saying that it must be sworn to. So he hitched up and drove to a justice of the peace, who charged him the usual 25-cent fee. The report and his check were then sent to the collector, but back they came again, rubber stamped to the effect that the "Department" did not dain to take ordinary checks. He bought a money order from his rural mail carrier, and finally his remittance was accepted after spending 39 cents, or 124 per cent. of the amount of the remittance, not to speak of the trouble and annoyance.

You see, our own state accepts checks from responsible people, and so do the mail order houses. Our friend, being spoiled that way, didn't know that "nothing is too good or too costly or has enough red tape to suit certain types of our officialdom."

Another telephone company, because of the carelessness and inefficiency of the local revenue office, failed to receive the usual receipt of the last month and with it the report blank for the next month. It failed to report because this blank was not in its files. The revenue office penalized the company. The company felt that it had cause for complaint, so referred the matter to Washington, with a certified check to cover the penalty.

Because the company referred this matter to Washington, it was soaked another 5 per cent. This penalty amounted to 15 cents, and was inclosed in a letter and mailed to the chief clerk, suggesting that after he heard from Washington, provided they instructed him to drop the matter, "he might buy himself an automobile or a cigar and keep the change."

The clerk evidently acted on the suggestion, for he didn't report the remittance. At any rate, a deputy called on the company with an order to sell the plant or collect 15 cents. The company insisted on a receipt, and was informed that one would be mailed. The officer was then told to either give a receipt or an injunction would be served on him. Of course, a receipt was forthcoming, although the collector said he had no right to do it. He probably did break one of the department's precious rules.

As an industry, we can well afford to give this matter our attention. The burden of red tape and the duplication in government reports is multiplying at a most alarming rate. We will more and more be compelled to make reports and remittances through this branch of the government. The injustice of its present high-handed, arbitrary methods should not be permitted to go on unchecked, unless we expect to maintain a special force of clerks to do their bidding.

Ward H. Snook.

Running Down a Cross with an Electric Light Circuit.

Some six or seven months ago we had a complaint from one of our subscribers in regard to his telephone service. He reported that sometimes when talking his line was very noisy. The line had a strong electric light induction. We made a ticket of the complaint and tested the line out thoroughly but could not detect any trouble, as the line was quiet then and there was no ground on the line.

One evening as this subscriber was talking on the telephone, the induction came in on the line. Just for a kind of a test, he opened the electric light switch which was close to the telephone and that cleared the line immediately. According to that, the trouble was in the house wiring, either in the wiring of the telephone or in the electric light wiring. The telephone wires being concealed in the walls, there was a chance for them to get in contact with the electric light wires somewhere in the walls. So the house was rewired for the telephone and the telephone line seemed good for some time. But one day it got to acting up again, so a man was sent out to the house to make a thorough test.

He first opened the electric switch disconnecting the house wiring from the outside wire and the telephone line was quiet as usual. As a next step, he connected the electric light wiring with the telephone line to get a test to find out if the electric light wiring in the house had a ground on it, but it tested clear. The electric light wiring was then connected to ground and the telephone line tested and a slight ground of only a few volts was shown. This would show that the two different circuits were crossed.

This subscriber had electric lights in his barn, about ten rods from the house, the electric light wires to the barn being tapped onto the house wiring from the second story of the house. There was a switch on the back porch of the house for turning on the lights at the barn. When the induction was so bad on the telephone line, this switch was turned off. In testing it was found that the switch opened but one side of the line, leaving one side working through.

The line was traced to the barn. On the pile next to the barn, there was found a little rusty wire hanging on the telephone line. Once in a while it made contact with the electric light wire. These wires were on the same pole and both were of bare wire. The wire being rusty accounts for the trouble being intermittent and not on there all the time. Since that wire was taken off, the telephone has worked fine.

Salina, Kans. A Lineman.

Heavy Investments in Motor Trucks by Public Utilities

Special Types Developed Through Co-operation of Truck Manufacturers and Public Service Engineers—Utility Is Greatly Enhanced, Efficiency Increased, and New Fields of Service are Found —Thirty-Nine Companies Purchase New Equipment

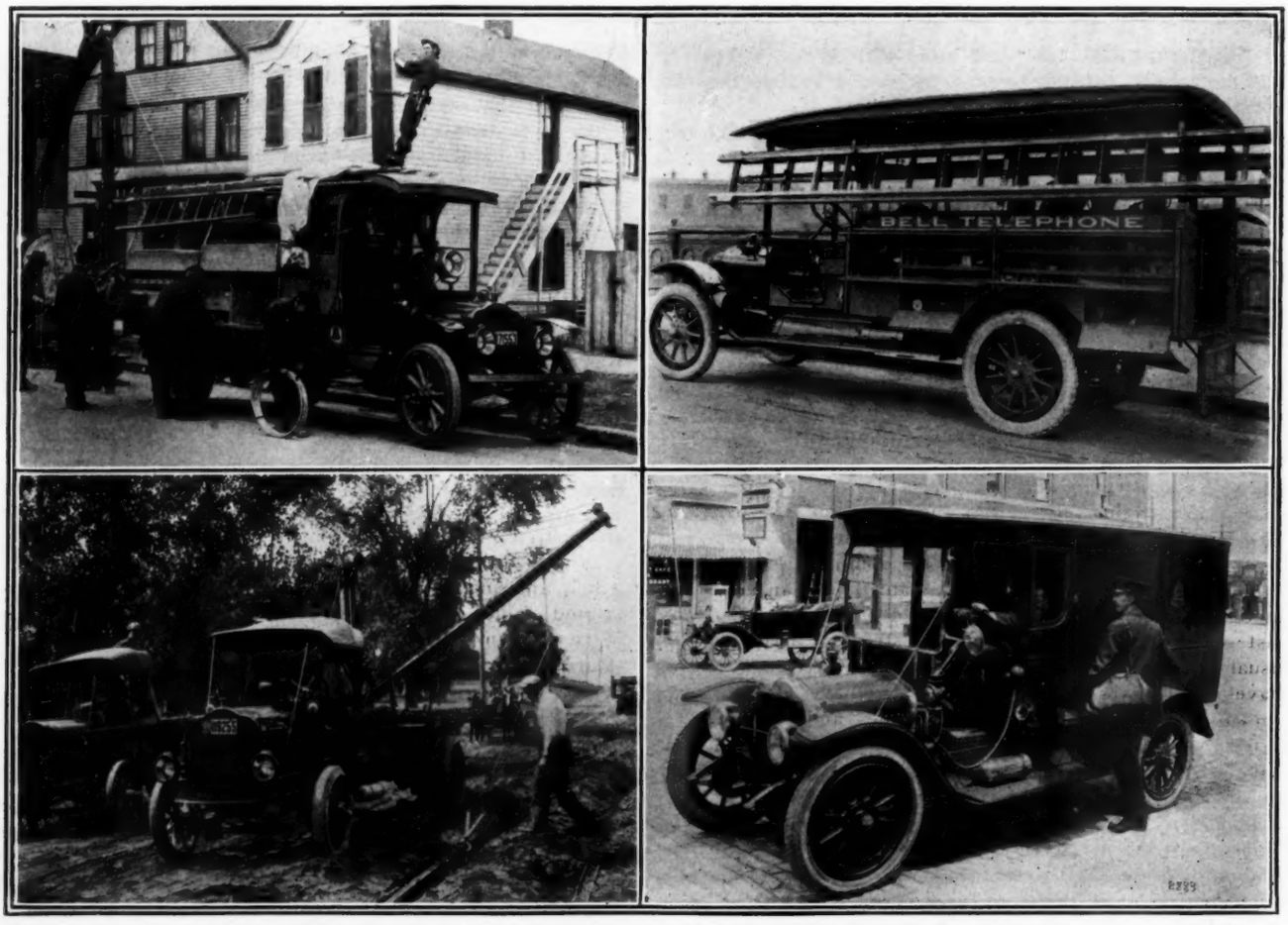
The motor truck is by no means a new servant in the employ of telephone and telegraph, illuminating, power, gas and water companies, street railways and other public service corporations. However, the increasing use of the gasoline power wagons, influenced by the spirit of progressiveness, improved service and economies resulting from past experience, has resulted in spirited buying during the last few weeks. Proof of this statement is best evidenced by the fact that during the last six weeks 39 different public service companies placed orders with one company for 100 motor trucks.

The fact that all of these trucks were ordered from the White Co. in Cleveland, is due not only to the performance of this company's product, but also to the high degree of specialization attained by this company in co-operation with the foremost engineers in the public service field.

Few fields of motor truck application furnish as many interesting examples of the machine's versatility, efficiency and economy, as in the service of the public utility corporations. Examples of economy have prompted owners and engineers to carefully study the possibilities of the trucks and to apply their uses in many new and interesting ways. The result of these investigations is reflected in the many orders placed with the White Co. for specially designed pieces of motor apparatus to meet the individual requirements of each concern.

It is natural for companies to possess a desire for the most efficient and economical methods of carrying on construction and maintenance work. This is one reason for the purchase of such a large number of motor trucks within the last few weeks. But there are also certain new conditions that have arisen recently to demand the installation of new and more efficient equipment, and the performance of the motor truck makes it the logical unit for the work.

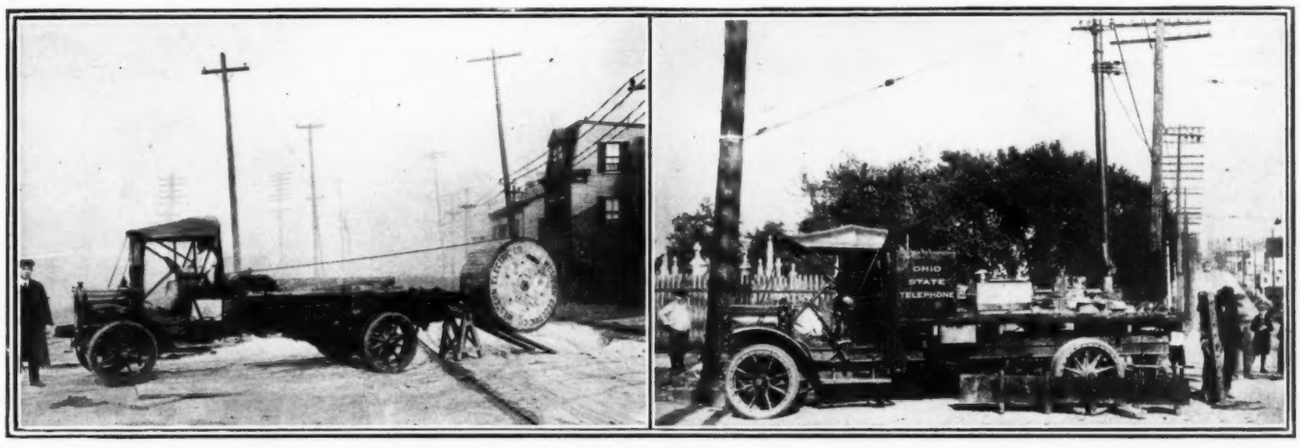
The rapid increase in the population in outlying districts has necessitated considerable new construction work and formed new haulage problems of great importance to the companies. Patrons are demanding a high standard of service and to meet these demands satisfactorily, the construction and maintenance of the plant and its equipment must be up-to-the-minute. In large cities this idea of service has made necessary the construction and maintenance of many widely separated plants or sub-stations, which are so closely allied that a uniform standard of efficiency must be maintained in all. In telephone and telegraph, illuminating gas, water power, and street railway companies, the



Special Telephone Truck to Carry Tools and Equipment—Other Uses of Motor Trucks Include Making Collections From Pay Stations.

efficiency of the whole organization depends on the efficiency of its individual units.

Gasoline trucks satisfactorily answer all the hauling problems of public utility service or in auxiliary service, which is incidental, and there is not a single quality of the truck that cannot be readily converted into substantial profit to its owner. The speed of the lighter vehicles saves time in making deliveries. A truck of this type can also be used as an emergency wagon to quickly transport men, tools and materials, to restore interrupted service. A truck can operate in an almost unlimited territory and by means of its greater carrying capacity, larger crews and greater quantities of material and equipment can be carried in a single day. Its dependability is a positive fact and the power of its motor is always available for performing countless duties done by workmen.



Single-Drum Power Winch Loading Cable—Pulling-In Underground Cable with Winch.

The types of gasoline motor equipment used by public service corporations include construction and delivery trucks, line repair trucks, emergency trucks, cable pulling power winch trucks, tower trucks, wrecking trucks, ash removal trucks equipped with power dumping bodies, and in some instances electric railways use bus lines for providing new transit facilities in the extension of existing street car systems and in the relief of neglected territories, to which it is impossible or impractical for traction companies to expand. Many large public utility companies use White gasoline trucks exclusively. That they continue to buy them year after year in large fleets, is contended to be proof of the efficient and economical service obtained.

Electric railway and power companies have an enormous amount of supplies to be transported. These supplies consist of materials for work on the street or road and the usual operating equipment required. All electric roads have supply cars, but they must also have motor trucks for distributing and collecting supplies and materials located at a distance from the tracks. Interurban lines have considerable construction work to be built across country in rural districts and in this case the motor truck is valuable in distributing material and carrying supplies and workmen from one section to another. Railway companies find an additional use for the trucks in hauling freight from terminals to the main shipping stations.

For initial construction work, routine and emergency repairs, new installations and equipment delivery, surprising economies have resulted from the use of motor trucks. In telephone service, for delivering instruments, directories, collecting money from pay stations; in electric service for delivering materials, such as switchboards, wire, electrical appliances, lamp renewals, transformers, and for meter and lamp inspections, as well as all other forms of haulage service, the truck has been found to effect great savings and also perform the work more efficiently.

The White three-quarter ton electrical service truck has been praised by public service engineers as the most complete and efficient piece of apparatus of its kind yet developed. This truck is designed especially to meet the demands of telephone and electric service. It can be used for light construction work and general maintenance duties in cities or the country. Supply bins placed on the sides make a convenient place for carrying small materials and the former loss of time in locating these materials is now practically eliminated. The special brackets on the sides for carrying ladders, pike poles, etc., are also much appreciated, and there is ample room in the body for carrying wire and other bulky material.

Telephone experts are so familiar with the equipment and utility of this truck that frequently in ordering this model they merely use the long distance telephone to call the White factory and inquire as to how soon delivery can be made.

Some of the motor trucks used by telephone, power and electric railway companies are equipped with searchlights which are used at night, or in time of emergencies occasioned by winter storms, etc. The light may be directed to the top of terminal pole, to the bottom of a manhole, or thrown along a cable line without changing the direction of the truck. It is also a help in covering country roads and outlying sections at night.

Trucks equipped with a single or double-drum power winch and niggerheads are used to pull aerial or underground cable, hauling and setting poles, hoisting transformers, pumping out manholes, righting derailed cars, clearing the track of obstructions, tearing up tracks and in dozens of other equally novel and interesting ways. With a double-drum power winch it is possible to pull two sections of cable with one set-up; that is, it is only necessary to equip one manhole in order to pull two sections of cable, thereby saving considerable time. They can also be used for loading and unloading cable and other heavy materials. Many of the leading cable construction engineers in the country are using this apparatus and are most enthusiastic about the work that is being accomplished.

Railway and power companies have shown an increasing use of the tower truck which is valuable for emergency repair work and line construction duties. These trucks are equipped with Trenton two or three-section towers, and also embrace many of the other salient features of the other general service trucks.

Railroads as well as power companies are using motor truck equipment with great success. The experience of a

large number of companies has shown that there is a large measure of utility in the use of motor trucks in certain kinds of hauling that heretofore have been expensive routine. The hauling of supplies to camps, poles and other material to construction gangs and the removal of ashes from power houses are, perhaps, the most common duties of motor trucks in the service of these companies.

Gas and water companies are also installing motor trucks on a very extensive scale. The trucks of lighter capacity are purchased for meter installations, the delivery of heaters, gas ranges and other gas appliances. They are also used for emergency wagons because their speed permits the rapid transfer of men, tools and materials in case of line breaks. Some of these trucks have brackets on the sides for carrying long pipe. In field work where pipe lines are extended over long distances and in laying natural gas mains, the heavy duty trucks with an extra long wheel base make it possible to easily handle heavy pipe up to 20 feet in length. Many of these trucks are also equipped with power winches, niggerheads, pulleys and skids.

An interesting use of a 1½-ton White truck is made by the Peoples' Gas Light & Coke Co., of Chicago. It is used as an emergency truck to answer every big fire alarm, gas leaks, explosions, sewer and street cave-ins, asphyxiation cases, suicides, drownings, etc., and no charge is made for its service. The truck covers the entire city and is equipped with the most modern type of pulmotor for reviving unconscious victims, while the two attendants of the truck are experts in its use. Many lives have been saved since the truck was installed.

In answering fire calls, it is the duty of the attendants to rush into the burning building, shut off the gas and electric connections and render such other assistance as it is possible for them to perform.

Public service corporations in the telephone field have ordered White trucks during the last six weeks as follows:

Bell Telephone Co. of Pennsylvania, for Williamsport, Pa., single-drum power winch; Cleveland Telephone Co., two special telephone trucks with single-drum power winch, one 5-ton truck with double-drum power winch and one 5-ton power dumping truck; American Telephone & Telegraph Co., one truck equipped with single-drum power winch to be used in the Chicago district, and one 1½-ton standard body to be used in Jacksonville, Fla.; one 3-ton, single-drum power winch truck, New York district; Chesapeake & Potomac Telephone Co., Baltimore, Md., two 2-ton trucks to be used in Washington, D. C., and two 1½-ton and two ¾-ton telephone trucks for Baltimore.

Southern Bell Telephone & Telegraph Co., one 1½-ton truck; Cumberland Telephone & Telegraph Co., five telephone trucks; Southern Indiana Telephone Co., one ¾-ton and one 1½-ton truck; Central Union Telephone Co., three ¾-ton trucks for Indiana, one 1½-ton for Indiana, two 1½-ton for Ohio and one ¾-ton for Springfield, Ill.; Dakota Central Telephone Co., one 1½-ton truck; Lincoln Telephone & Telegraph Co., Lincoln, Neb., one 2-ton truck; Home Telephone Co., Goshen, Ind., two ¾-ton trucks; New York Telephone Co., New York City, eight ¾-ton trucks; Southwestern Telegraph & Telephone Co., St. Louis, three 1½-ton trucks.

Cumberland Telephone & Telegraph Co., one ¾-ton for New Orleans and one ¾-ton for Shreveport, La.; Indianapolis Telephone Co., one 1½-ton truck; Southern New England Telephone Co., five 1½-ton trucks and New England Telephone & Telegraph Co., two ¾-ton trucks.

From Factory and Salesroom

Conventions: Indiana Independent Telephone Association, Indianapolis, September 14-15; United States Independent Telephone Association, Chicago, December 6-8

Ruling On Unfair Competition In Manufacturing Field.

The Diamond Expansion Bolt Co., of New York, through its attorney, Alan M. Johnson, and counsel, Henry B. Corey, of New York City, was recently awarded a judgment by the New York Supreme Court in a suit brought against the United States Expansion Bolt Co. for unfair competition. The case relates to the copying by one manufacturer of the product of another by simulating the appearance of the rival article in unessential details for the purpose of deceiving the public.

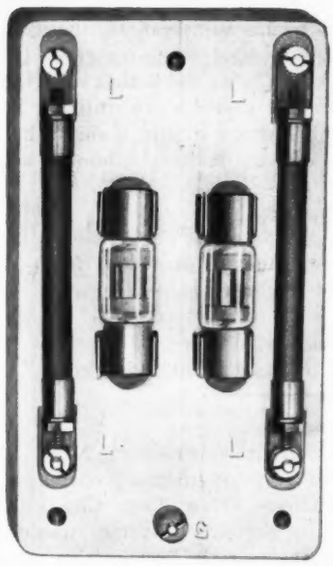
In the decision, it is recited that the plaintiff, the Diamond Expansion Bolt Co., has been engaged for the last 17 years in the manufacture and sale of lag shields and anchors and during that time has built up a valuable good will. About 1910 the plaintiff placed upon the market a new form of lag shield which was distinctive in form, appearance and style and in May, 1911, also placed on the market a new form of anchor different from anything previously on the market and of a distinctive form, appearance and style.

In 1912, the United States Expansion Bolt Co. began to manufacture a machine type of expansion bolt devices. A year later the company concluded that, in order to make its machine bolt business a success, it must be able to supply its trade at the same time with lag shields and anchors. Accordingly, it asked the Diamond Expansion Bolt Co. to supply its shields and anchors, at such a price as would enable the United States company to sell them in competition with the Diamond company. Upon receiving the natural refusal, the defendant proceeded to get out a rival shield and anchor which were, it was contended, essentially Chinese copies of the plaintiff's devices.

Placing its articles in the market, the United States company launched a vigorous campaign by widely advertising a cut of 25 per cent. under the prices maintained by the plaintiff and its other principal competitors. The defendant followed this up by underhanded attempts to hire away the plaintiff's important salesmen. It announced to the trade that its devices were identical with the plaintiff's and endeavored to persuade various jobbers that there was no risk in substituting the defendant's goods for the plaintiff's.

The opinion of the court states that "it must be evident from this statement of the case that, if the law of unfair trade practices has any vitality, the plaintiff is entitled to a decree."

" . . . there are many other ways of indicating origin or manufacture than by the use of a name or trademark. Where an article of distinctive appearance has been on the market in that form for a long period of time and has been popularized and identified with its manufacturer through advertising and general use, its distinctive appearance gradually becomes as important a representation of origin as its trademark.



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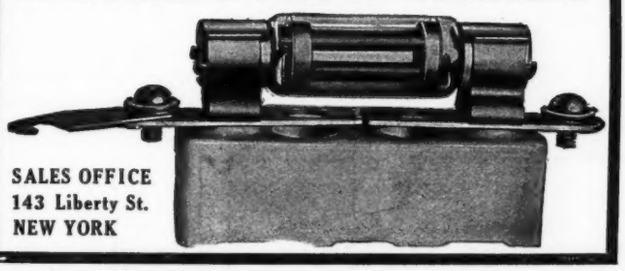

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They don't ground the line.

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are rapidly taking the place of all other styles of telephone booths. Yesbera booths represent the perfection of this type, and every person in the telephone business should know all about them. As compared with "old style" booths they save space, improve ventilation, and prevent injuries. A request will bring you full particulars.

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The MIAMI Trailer has proven a big success in the telephone field. Let us tell you how.

Miami Trailer Co.

Troy, Miami Co., Ohio

It is entirely well settled that misrepresentation of origin and of manufacture may be made by simulating the collocation of details of appearance by which the consuming public has come to recognize a product, and that a court of equity will not allow one to palm off his goods as those of another, whether his misrepresentations are made by word of mouth or by the more subtle and effective methods of simulation. (Enterprise Mfg. Co. vs. Landers, 131, Federal Reporter, 240). It is true that where the copied details complained of are essential to the utility of a device, they may be freely employed."

The burden of providing that the copied details and collocation of details complained of are unnecessary to the utility of the defendant's devices, was upon the plaintiff, the defendant contended. This burden of proof, the court held, has been met by the plaintiff in a most convincing manner. With respect to the iron lag shields, the opinion states, the plaintiff has demonstrated that a number of details, materially affecting the general appearance, are unessential so far as concerns the utility of the device. It was similarly demonstrated with regard to the lead anchor.

"The defendant has made a Chinese copy of the plaintiff's devices, not because it is absolutely essential to the utility of the devices, but because the devices will sell better if their appearance is identical with the form so popularized by the plaintiff that they have become what the defendant calls the standard type. No such position is fairly tenable, particularly in a case teeming with bad faith and deliberate intention to appropriate the established good will and trade of another."

In reply to the argument of the defendant that the effect of granting the relief sought would be to give the plaintiff a monopoly of its adopted forms and designs, the court held that it would not be a monopoly, but merely a perfectly natural and proper protection of the indicia of origin, so long as these indicia are not essential to utility. The records show that other competitors of the plaintiff have built up a large business in similar devices without resorting to unfair methods.

In conclusion the opinion stated:

"The plaintiff seeks no monopoly, but merely seeks that its good will and legitimate trade be protected from unlawful misappropriation and unconscionable methods. Its cause is a just one and the proof is clear. The counterclaim is dismissed and judgment ordered in favor of the plaintiff, as prayed for in the complaint, with costs."

Paragraphs.

THE UNITED BATTERY CORPORATION, of Brooklyn, N. Y., has separated its executive offices from its factory, opening up offices in the Woolworth Building, New York City. This change was made necessary by the fact that the company's business has outgrown its present quarters, necessitating an increase in manufacturing facilities. In addition to the main factory in Brooklyn, the company also has factories in Toronto, Ontario, Canada, and Manila in the Philippines.

E. R. MARKER has been placed in charge of the business of the T. L. Smith Co. in Wisconsin. He will maintain headquarters at 609 Wells street, Milwaukee, where he will carry a stock of mixers on the floor, as well as a complete line of contractors' supplies.

Condensed News Reports

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items of Interest as to Their Plants and Systems

New Companies and Incorporations.

ROSWORTH, IDAHO.—The Rosworth Telephone Co. was incorporated recently to construct and maintain a telephone system at Rosworth. The capital stock of this company is $630.

CORNELL, IOWA.—Articles of incorporation have been filed for the Farmers Mutual Telephone Co., with a capital of $10,000. Charles Gilmore, E. M. Clapp and G. H. Parker are among the incorporators.

MARQUETTE, KAN.—The Marquette Farmers' Telephone Co. has incorporated with a capital stock of $1,500.

ISOLA, MISS.—The office of the chancery court of Washington county is in receipt of a charter from the governor granting the Isola Telephone Co. the right to operate telephone exchanges and lines in Isola. The company is capitalized at $1,200. The incorporators are: E. E. Barr, F. P. Green, H. M. Tire and J. Goldberg.

ALMA, MONT.—Articles of incorporation have been filed by the Farmers Mutual Telephone Co., with a capital of $10,000. The incorporators are: J. Lee McClellan, Harry A. Baldwin, J. B. Maddock, R. E. Nelson and A. G. Luedeman.

BIG SANDY, MONT.—The Farmers Mutual Telephone Co. has been incorporated with a capital of $30,000. Oscar Harty and Warren McDonald are among the incorporators.

HODGES, MONT.—The Farmers Mutual Telephone Co. was incorporated recently for $5,000.

MINATARE, NEB.—The Citizens Independent Telephone Co. has been organized. B. F. Ore is president and T. A. Weishaar, secretary.

BISMARCK, N. D.—W. E. Reeves, manager of the local exchange of the North Dakota Independent Telephone Co., has organized the fifth rural line running out of Bismarck. The new line will be known as the Naughton Telephone Co. and will serve Naughton and adjoining townships. The line will extend 18 miles northeast of Bismarck, having 11 miles of new main trunk and eight miles of laterals. The officers of the new company are C. A. Carlson, president; C. A. Johnson, vice-president; A. Johnson, secretary, and August Solberg, treasurer.

JAMESTOWN, N. D.—The Farmers Southwestern Telephone Co. has been organized with a capital of $4,800. The following are the officers: N. H. Newling, president; E. P. Lenton, vice-president; H. P. Lenton, secretary, and L. H. Murphy, treasurer.

TIMBER LAKE, S. D.—The Farmers Mutual Telephone Co. has just been organized.

UNIONVILLE, VA.—The Unionville Telephone Co. was incorporated recently with $5,000 capital stock. The incorporators are L. D. Walker and G. M. Waugh.

Elections.

CORYDON, IND.—The annual election of officers of the Eureka Telephone Co. has resulted as follows: President, Jacob Stevens; vice-president, Joseph L. Haas; secretary, H. M. Gerdon; treasurer, George Miller; directors, William H. Keller, Sr.; L. D. Robson, Jacob Schneider, Sam Breeden, Marion Faith, Charles W. Reising.

SAUK CENTER, MINN.—At a meeting of the directors of the State Road Telephone Co., the following officers were elected: William Elliott, president; George Grundman, vice-president, and Clark Wilcox, secretary.

HAVRE, MONT.—At a meeting of the directors of the Havre-Box Elder Telephone Co. the following officers were elected: Nick Faber, president; Edward Redwing, vice-president, and George Forge, secretary and treasurer.

LAVINA, MONT.—At a meeting of the directors of the Lavina Mutual Telephone Co. D. W. Slayton was elected president.

LINWOOD, NEB.—The annual meeting of the Linwood Telephone Co. was held recently. The directors elected for the ensuing year are Thomas Duda, Frank Faytinger, J. B. Tichacek, Ed. Kaveney and F. F. Mundil. A dividend of eight per cent. was declared. The company has paid a dividend of six per cent. each year since its organization, excepting that

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Weight 10 lbs.

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for the past two years the dividend has been increased to eight per cent.

SPRING VALLEY, WIS.—At a meeting of the directors of the Pierce County Telephone Co., the following officers were elected: F. M. White, president; A. J. Baker, vice-president, and J. L. Moody, treasurer.

Financial.

OIL CITY, PA.—At a recent meeting of the Petroleum Telephone Co., the regular quarterly dividend of 1¼ per cent. was declared on common stock.

Construction.

BATESVILLE, ARK.—The Southwestern Telegraph & Telephone Co. will construct a new building for the exchange and install new equipment this summer. The expenditure will total $18,000.

FRESNO, CAL.—Authorization for the expenditure of approximately $36,000 to enlarge the service to take care of the new districts, to place wires underground and to make general improvements in towns near Fresno has been made by the general office in San Francisco of the Pacific Telephone & Telegraph Co., and it is estimated that the work will be finished within the next eight months. Announcement of the improvements and additions to the service was made recently in the district office of the telephone company.

JACKSONVILLE, ILL.—The Illinois Telephone Co. is making arrangements to rebuild a large part of its lines within the corporate limits this summer. The cost of the work planned will be approximately $5,000.

SANDWICH, ILL.—The annual stockholders' meeting of the Northern Illinois Telephone Co. was held recently. The company has reduced its floating and bond indebtedness during the past year over $30,000. A large amount of cable will be installed at Mendota this year. Over six miles of cable will be laid underground in that city. The retiring board of directors were unanimously re-elected, consisting of F. S. Mosher, J. N. Antoine, Wm. Von Ohlen, George Hicks, E. C. Mosher, Justin Latham, E. A. Manchester, C. A. Harbaugh and George S. Hyde. The board met immediately after the adjournment of the stockholders' meeting and re-organized by re-electing F. S. Mosher, president; J. N. Antoine, vice-president; E. E. Wallace, secretary and treasurer.

CONRAD, IOWA.—The Conrad Telephone Co. is improving its lines.

ROWAN, IOWA.—The Rowan Telephone Co. will extend its lines to Galt.

ARGYLE, MINN.—The Argyle Telephone Co. is rebuilding its lines in the city.

AUDUBON, MINN.—The Audubon Telephone Co. is erecting a new building.

BRANDON, MINN.—The local lines of the Alexandria Telephone Co. are being rebuilt.

CANNON FALLS, MINN.—The Cannon Falls Telephone Co. is building another line to Northfield.

MANKATO, MINN.—The Citizens Telephone Co. will improve its system.

MORGAN, MINN.—The Redwood County Rural Telephone Co. will rebuild the local exchange.

ARNEGARD, N. D.—An exchange building will be erected by the Farmers Telephone Co.

DOUGLAS, N. D.—The Douglas Telephone Co. will erect a new exchange building.

PENN, N. D.—The lines of the Penn Rural Telephone Co. will be extended.

RAY, N. D.—The Williams County Mutual Telephone Co. has extended its lines to connect with the telephone company at Wildrose.

MILWAUKEE, WIS.—The Wisconsin Telephone Co. will spend $350,000 for improvements to its service and plant in Milwaukee and $96,000 for additions and repairs to the plants in Wisconsin, outside of Milwaukee.

Miscellaneous.

WEST BEND, IOWA.—L. W. Balgeman has purchased the controling interest in the West Bend Telephone Co.

BURLINGAME, KAN.—The Independent Telephone Exchange in Burlingame, owned by C. W. Heberlee & Son, has been sold to Thomas Brown and William Redpath, of LaJunta, Colo. The exchange was sold for $16,000 cash and the new owners took possession on July 1.

BUDA, TEX.—A certificate of dissolution has been filed by the Buda Telephone Co.

DORCHESTER, WIS.—The Midway Telephone Co. has purchased the Linder building, which will be remodeled for an office.

SEYMOUR, WIS.—The state railroad commission has granted the Magneta Telephone Co. the right to operate an exchange.

Cook's Protective News

Vol. 1. No. 17 ***In the Interests of Adequate Telephone Protection*** **July 8, 1916**

A Secret

A MAN came into our offices the other day. He said he wished he knew the secret of the success of the House of Cook with such an extremely difficult line as telephone protective equipment.

Listen! We will gladly let you into the secret—the secret of why hundreds of managers and purchasing agents of Independent telephone companies automatically and subconsciously say "We'll send this order to Cook," whenever they are in the market for protective equipment.

Confidence!

That's the whole secret.

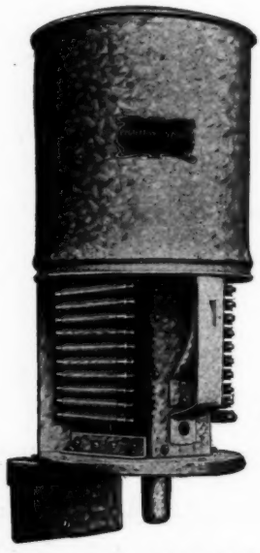
The users of Cook-made products have confidence in them. They know that any piece of equipment bearing the Cook name is as well made as it is humanly possible to make it—of materials that years of experience have proved to be best for that particular purpose.

The Frank B. Cook Company maintains an extensive experimental laboratory where equipment is being continually tested with a view of increasing its effectiveness.

Buyers of Cook products know this, and consequently feel confidence in the Cook Line.

We do business with telephone men who are business men. And we know that business men expect to receive the goods.

So we deliver the goods.



The Old Reliable S-6

So widely used that it might almost be called, "The Standard Pole Cable Terminal of America."

An all-metal terminal in which no pothead is required. The galvanized iron weatherproof cover, whether raised or lowered, is held in place by a heavy, galvanized steel spring of our own patented design.

Tell us your approximate requirements for the season in pole cable terminals and we will be glad to quote you our very lowest figure on what we consider the best pole cable terminal ever produced.

* * *

The Dangers of Substitution

Younghubby (gulping down his first bite of pancake)—"Wow! What awful syrup! What is it?"

Youngwifey (tearfully)—"Oh dear, I hoped you wouldn't notice it, but the grocer was all out of table syrup and I got a bottle of cough syrup instead."

Observant Child

Teacher—"What is water?"

Willie—"A colorless fluid that turns black when you wash your hands."

Frank B. Cook Co.

326 W. Madison St. **Chicago, U. S. A.**